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ARTS AND CRAFTS

for

CANADIAN SCHOOLS

ARTS and Crafts
FOR CANADIAN SCHOOLS

by **LOUIS A. SHORE** B.A., B. Paed.

CENTRAL HIGH SCHOOL OF COMMERCE — TORONTO

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The Meaning of Art

The dictionary defines Art as "the application of skill and taste to production according to aesthetic principles". Note that nothing is said about paint or painting. Nor is the term limited to drawing, sculpture, architecture, and decorative design. It is rather a broad concept that includes, in addition to the above, ceramics, handicrafts, landscaping, town-planning, textile and costume design, stagecraft, photography, interior decoration, commercial, industrial, and graphic arts, in fact, everything that could be included under the category of "skill and taste to production according to aesthetic principles".

But this is not the interpretation that is generally ascribed to Art. Art to John Q. Public is a vague, fancy, mysterious something, generally surrounded by frames, collected by millionaires, housed in museums, and discussed by critics at afternoon teas. Artists are "queer" fellows, beyond contact with the realities of life, (their habitation an ivory tower) and out of sympathy with ordinary men.

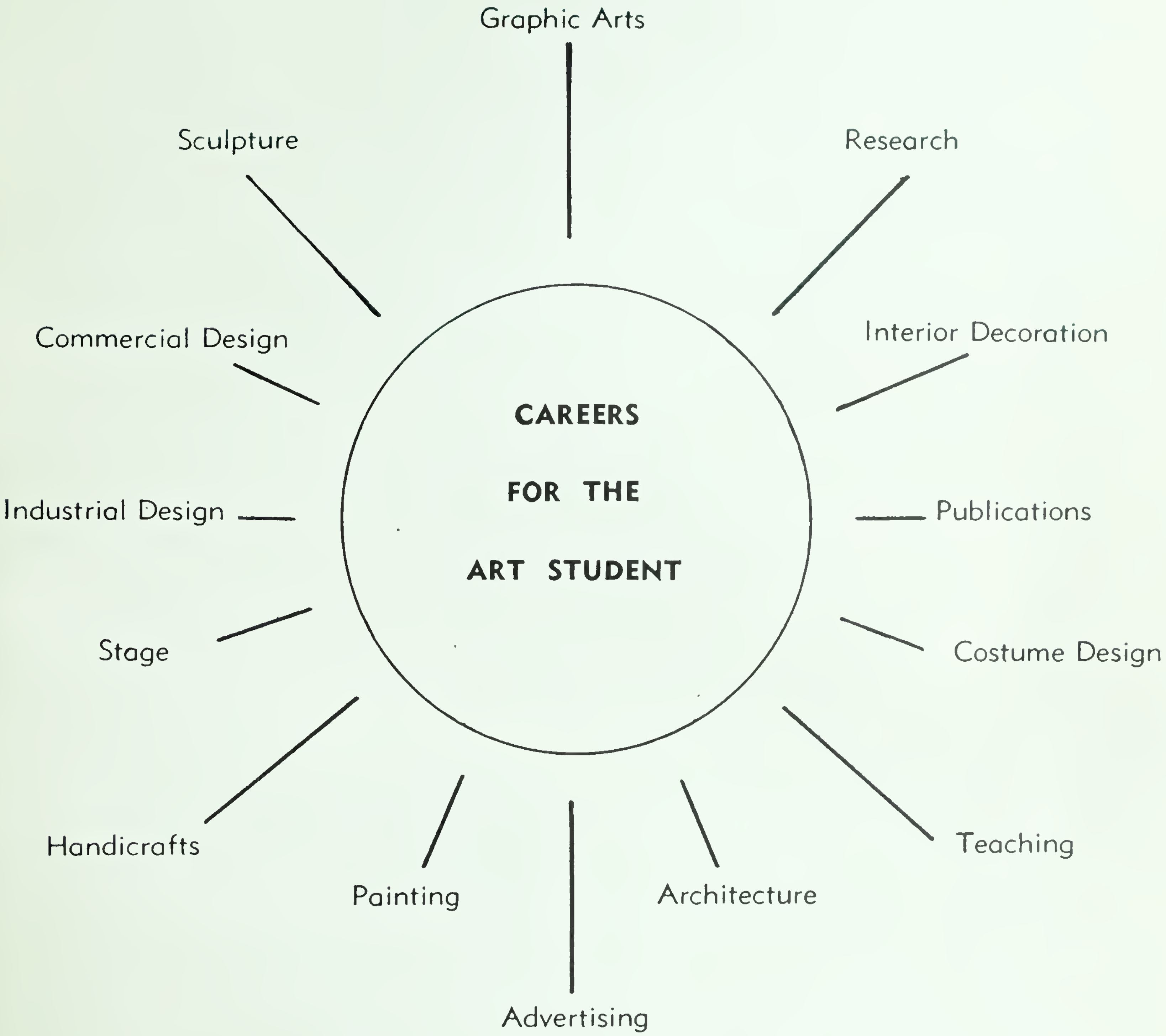
A person living during the period of the Renaissance would be unable to understand such a separation of Art from life. Then artists were part of the social scheme, inspiring and getting their inspiration from the people. The work that they did was a product of the times and of the community in which they lived. The goldsmiths, locksmiths, glovers, weavers, carvers, painters and potters were masters of their crafts. To them art was not an "ism", but a tradition; not only a means of livelihood, but a way of life.

Such an interpretation of the term has certain implications for the teacher. It means that art will be associated with activity, give pleasure, be useful as well as ornamental, and allow exploration. This conception will not sanction the memorization of art notes, or the listing of "appreciation facts" concerning the historic masterpieces; neither will it deaden the student's sensitivity to art by sterile, geometric pattern-making, nor will it set up models to be slavishly imitated. Our view envisages a wider use of materials which may encompass glass, clay, metal, wood, leather, textiles, plaster, linoleum, and composition materials, as well as the traditional paper. Students should be surrounded with an adequate supply of all of these materials. It is amazing how much material can be salvaged from discarded objects. Without advocating waste, the students should be encouraged to a free and unhampered use of supplies. In themselves the supplies have little intrinsic worth; it is what is done with them that determines their educational value.

The tools in the art class need not be confined to the pencil, pen, or brush, but may include the gouge, needle, scriber, electric pencil, chasing tools, hammer, coping saw, etc. It is possible for the artist to tell his story in ways other than drawing and painting. In his effort to find the correct technique for both his tools and material, he may have to carve, engrave, weave, letter, model, etc. Use of the incorrect technique would, of necessity, bring failure. We do not try to decorate a clay bowl with a hammer, or carve a granite block with a pocket-knife.

Should the tools, materials, or existing techniques be inappropriate for the problem at hand, then the artist-learner, if his interest is real, and his urge to objectify his vision strong, will explore, select, and reject until he finds what he wants. It is then that the artist becomes creative. The creation may not be original from the viewpoint of race history, but as far as the individual is concerned, it is new.

In the art class the approach should generally be from the student to the teacher. Unhampered, the student is neither afraid to start nor to explore. He is assured that he will not be judged by fixed, worn-out standards. The self-selected material and technique have a personal appeal and social meaning that provide the stimulus and interest necessary for effective learning. The teacher's problem is no longer one of discipline, or of "sugar-coating", but of getting rid of the students at half-past five!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FOR THE
ART STUDENT
Graphic Arts
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Interior Decoration
Publications
Costume Design
Teaching
Architecture
Advertising
Painting
Handicrafts
Stage
Industrial Design
Commercial Design
Sculpture

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—*Fashion Drawing—How to Do It*—Dalton and Boulard—Harper's, New York.
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—*Do It Yourself*—American Crayon Co., Sandusky, Ohio.

10.—*The Art and Craft of Lino Cutting and Printing*—C. Flight—Copp Clark.

11.—*Bookcraft*—Gaylord Library Supplies—Ryerson, Toronto.
—*Let's Make a Book*—Shoen—Musson Book Co. Ltd., Toronto.

12.—*On Soap Carving*—Gaba—Clarke, Irwin, Toronto.

13.—*Making a Poster*—Austin Cooper—Musson Book Co. Ltd., Toronto.
—*Planning and Producing Posters*—J. de Lemos, School Arts, Worcester, Mass.

14.—*Writing, Illuminating, and Lettering*—Edward Johnston—Pitman, Toronto.
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16.—*Whittling and Woodcarving*—Tangerman—McGraw, Hill & Co., N.Y.
—*New Ideas in Woodcraft*—J. T. Lemos—Bridgman Publications, N.Y.

17.—*Art Metalwork*—Kronquist—McGraw, Hill & Co., N.Y.
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—*Copper Work*—Augustus Rose—Metal Crafts Publishing Co., Providence, R.I.
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—*The Art Class in Action*—J. Horne—Longmans, Green, Toronto.
—*Integrated Handwork for Elementary Schools*—L. J. Newkirk.
—*Dryad Leaflets on Miscellaneous Crafts*—Macmillan, Toronto.

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1.—*Deltagram*—Delta Mfg. Co., Milwaukee—6 issues, 50c per year.
2.—*Home Craftsman*, New York—12 issues, $1.25 per year.
3.—*Popular Homecraft*—General Publishing Co., Chicago—12 issues, $2.00 a year.
4.—*Popular Science Monthly*—New York—$2.50 per year.
5.—*School Arts*—Worcester, Mass.—10 issues, $300 per year.
6.—*Design*—Columbus, Ohio—$3.00 per year.
7.—*Canadian Art*—National Gallery of Canada, Ottawa.
8.—*What to Make*—Popular Mechanics Press, Chicago—50c per copy.
9.—*Industrial Arts Co-operative Service Catalogue*, 519 W. 121 St., New York, 27.
10. *Everyday Art*—American Crayon Co., Sandusky, Ohio—6 issues per year—free.

FILMS

1.—*The Last of the Wood Engravers*—2R, 16 mm., silent
2.—*The Etcher's Art*—2R., 16 mm., silent.
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6.—*Architects of England*—1R., 16 mm., sound.
7.—*Canadian Landscape*—1R., 16 mm., sound—colour.

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8.—*West Wind* (Story of Tom Thomson)—sound, colour.
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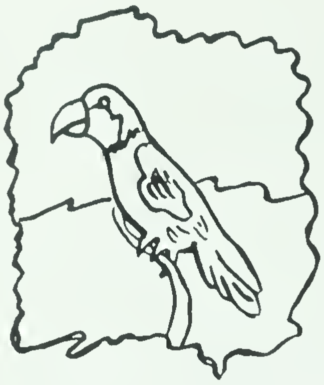

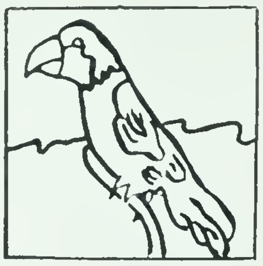

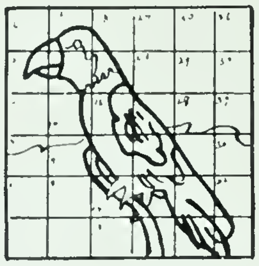

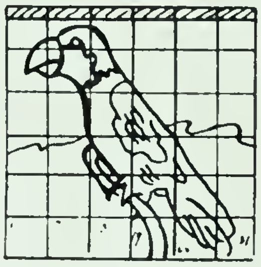

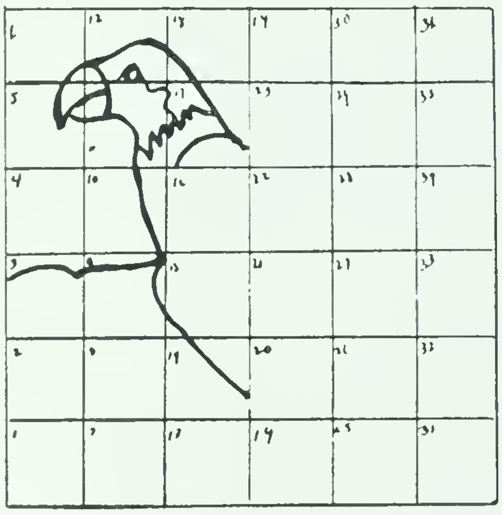

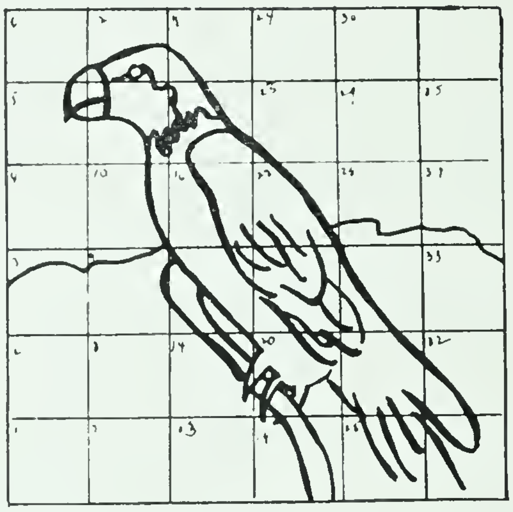

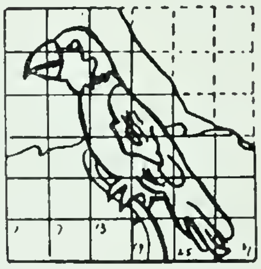

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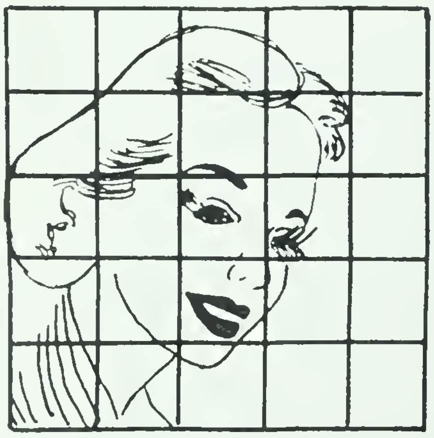

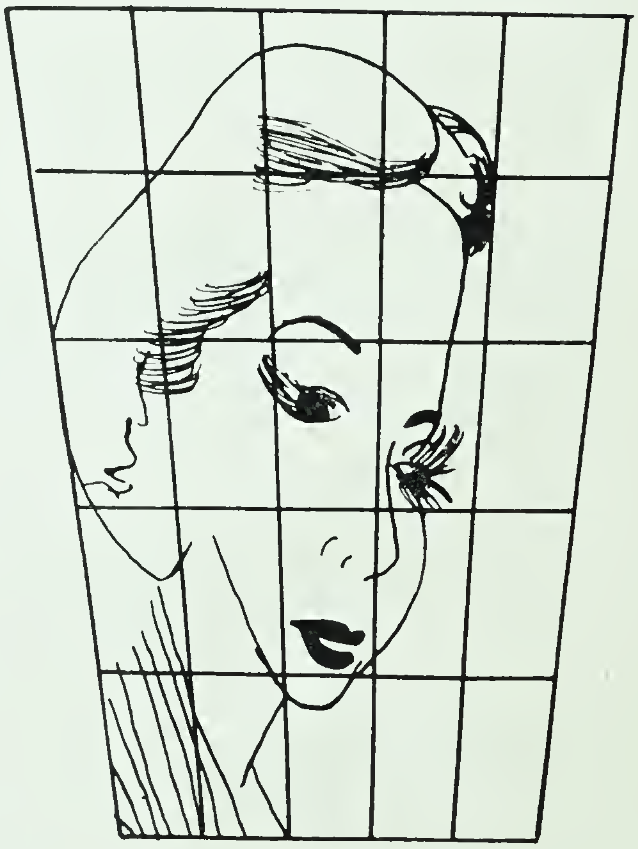

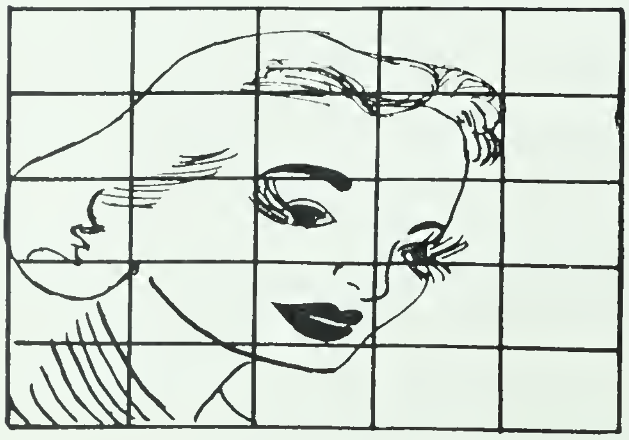

ENLARGING

This technique is one that is often used in art work. It will enable you to enlarge or reduce your design unit or pattern so that the space that is being decorated is filled satisfactorily. This method has been used a great deal for posters, after the small sketches have been made; for large scale friezes, and for mural work.

1. A is the diagram to be enlarged.
2. Surround A by a rectangle or square so that the diagram nearly fills the space B.
3. Divide the enclosed space B into a number of squares, not less than fifteen, nor more than one hundred C-1.
4. If in making your squares you find that your diagram does not fill a given number of complete squares,—either add the space C-2, or assume that the space has been added C-3; the empty space will in no way change the character of your enlargement.
5. Number the squares both up and down, and across.
6. Decide how many times the unit is to be enlarged. Take into consideration the size of the paper on which the enlargement is to be made.
7. If the enlargement is to be twice as large as the diagram found in B, and the size of the squares in C-1 is ¼″, then the size of each square in D will be ½″ to a side.
8. In order to make the enlargement accurate, D must have (a) the *same number* of squares as are found in C; (b) its squares *numbered exactly* as are the squares in C; and, (c) its squares must *be in exactly the same position* as are the squares in C.
9. Working one square at a time, mark on D the same lines in the same position, as are found in the corresponding square in C. For example, since there are no lines belonging to the diagram in #1 or #2 of C, there will be no lines drawn in the corresponding squares of D. Note approximately where it cuts the boundary lines of the square. Draw a similar line in a similar position in #3 of D. Continue until the whole diagram is drawn on D. Check each square for the omission of details. Remove the guide lines and colour the diagram.
10. To reduce the size of a picture or diagram, work from the larger to the smaller squares as outlined above.

CARICATURES

The same method that is used in making enlargements can be used in making caricatures. By changing the proportion, not the number or position of the original squares, you can create interesting distortions. If any special features are to be distorted, viz., ears, eyes, nose, etc., change the proportion of the squares in which these particular features fall.

Make a collection of the caricatures of famous people—the cartoons on the editorial pages of newspapers provide a good source of supply; or, trace your own photo and draw caricatures of yourself.

MURALS

A mural, or frieze, may be the means by which art is related to other school subjects. It provides an opportunity to experiment in large, bold expression, to exercise imagination, and get practice in visual composition. This work has a social value in so far as the worker is contributing to an activity, the success of which involves "thinking and acting for himself, while thinking and acting with others". The search for appropriate information and pictures to answer questions and to illustrate facts, will not only be interesting, but in the course of the search the student will learn many things which ordinarily are not to be found in the general studies at school.

It is wise to make a plan for most activities that extend over a period of time. It insures orderly progress and eliminates needless waste of time and materials. First, decide

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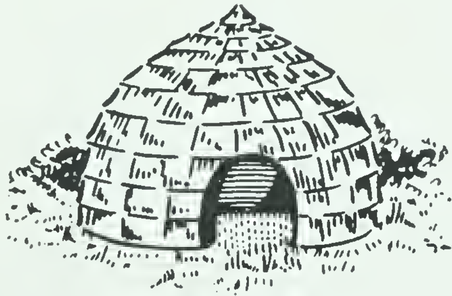
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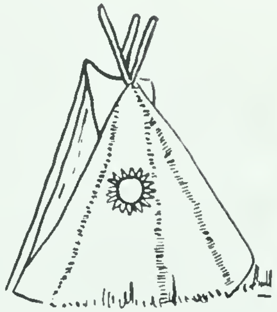
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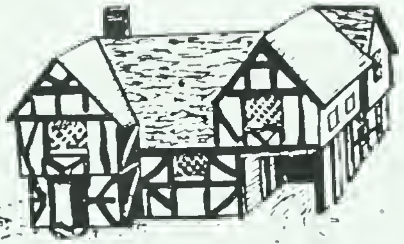
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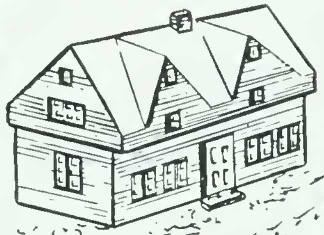
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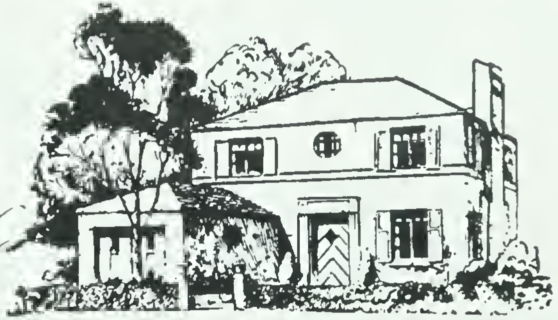
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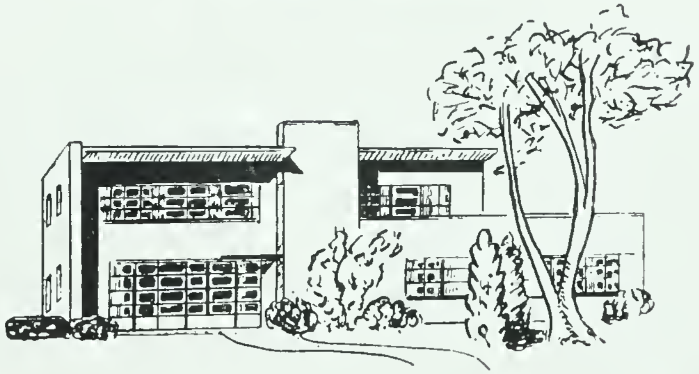
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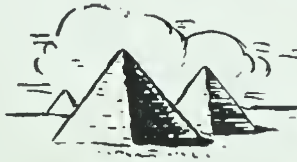
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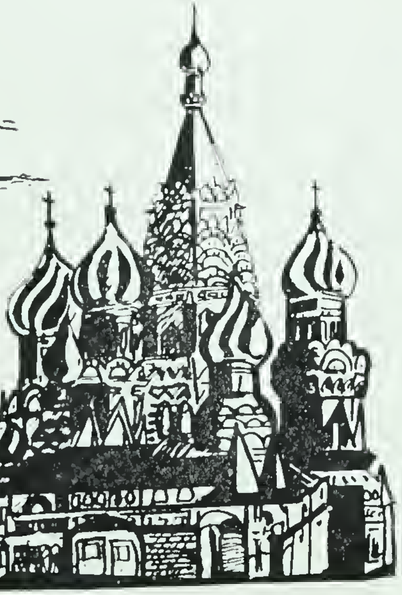
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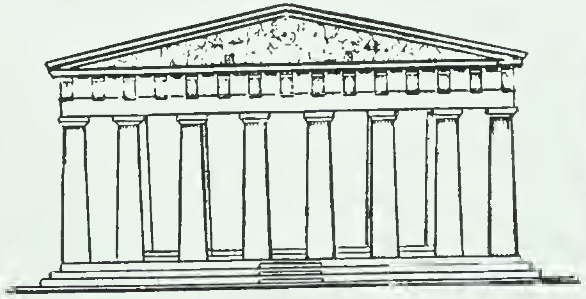
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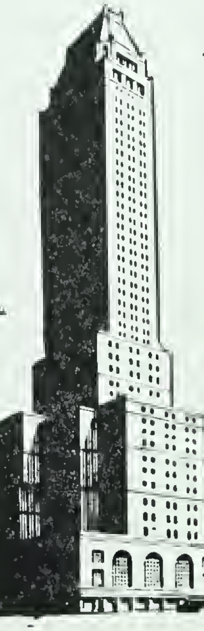
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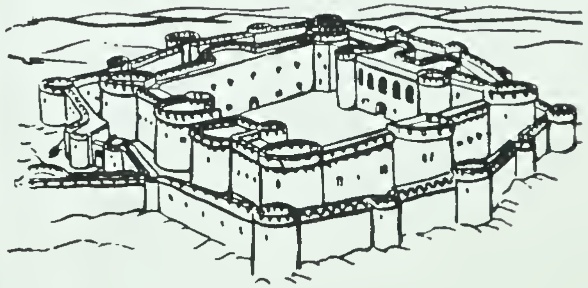

Castle—England

National Types of Architecture

upon the subject for the mural. See that it is appropriate to the general activities of the room. Thus depicting famous musicians in the science laboratory or showing the development of the book in the gymnasium would be inappropriate. Subjects for murals in special rooms are much easier to decide upon than in general subject rooms. See list of suggestions appended at the end of this section.

In planning the mural the following considerations should be taken into account. It should be composed of units that can easily be seen from any part of the room; the units should form a continuous pattern; design units should be chosen from those which have a minimum of perspective; such features of the wall as windows and doors should be taken into account—have the pattern flow around them; and the colours (flat paints should be used to avoid highlights) should harmonize with the colours used in the decoration of the room.

Appoint a committee to decide first upon the subject and then upon the number of design units to be used to illustrate the subject. This number should be divided among the various members of the class, assigning at least two students to each unit, so that all the available sources might be investigated. Other students might measure the spaces available, collect and mix paints, clean brushes, erect a scaffolding, build stands, etc.

When the ideas have been collected, hold another class conference to determine what material should be retained. Small black and white sketches of the material are then made. These are assembled on a small background similar in shape to the final background.

The following procedure has been found workable while painting the mural. The students assemble, and each is assigned to a particular section after a class conference on the progress of the work. The girls then go and change into their slacks and running shoes. There is a rotation of students who assist with getting paints, supplies, and other materials for those working on the scaffolding. Twenty minutes before the end of the period (a mural should not be attempted by classes that have less than eighty minutes of Art at one time) the paints are brought down, brushes are cleaned, and discussion takes place on the progress made, and future work. The students are then given time to change their clothes and wash up.

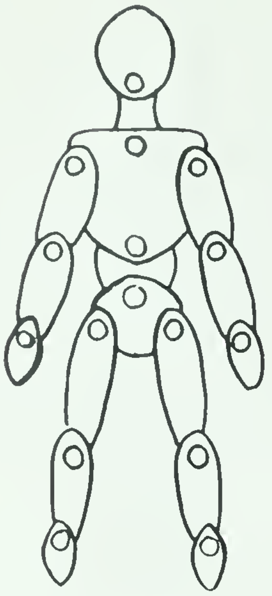
Subjects for Class Murals

1. Life in the Middle Ages.
2. Sports in our community.
3. An animated map of the county.
4. Animals of North America.
5. The development of transportation.
6. The history of numbers.
7. Scientists, explorers through the ages.
8. Pioneer life in Ontario.
9. An art map of Canada.
10. Postal service through the ages.

DRAWING METHODS

Just as the continued use of words has enabled one to improve the power and quality of his speech, in a like manner repeated practice gives more ability to express oneself with pencil, pen, or brush. In the present exercise no attempt should be made to judge one's efforts from either an adult or technical standpoint. Aim at getting the feeling or atmosphere, rather than producing a finished drawing. Get a personal point of view into your work by interpreting any of the suggested topics, or others of your own choice which have previously been accepted by the teacher, by emphasizing the most important idea in the drawing you are about to make in the way of size, shape, colour, or position. If you feel that you need the mannequin or stick figure to help you, do not hesitate to use them for sketching figures in action. The illustrations on the next page show how the mannequin may be used as a cartoon device to illustrate English studies.

In pencil work an HB or B pencil is good for general purpose work. Draw the lines lightly so that any corrections may readily be made with an art gum eraser. If you wish to give the impression that the object being



Mannequin

The noun is the name of a person, place or thing.

An adverb describes verbs, adjectives, or other adverbs.

Word families—

opus,

opera,

operate,

operator.

Figure of speech—
He's a good mixer.

Picturesque speech—
-A melody kept running through his head.

Idiom—
She is a straight-laced person.

Quotation—"Speak low if you speak love".

Opposites–thin–stout.

Proverb—All that glisters is not gold.

drawn is hard, use clean well-defined lines; the lines for softer objects, or those whose outline is less definite, may be treated more freely.

Use charcoal or coloured chalks for large drawings. For sharpening these materials use fine sandpaper. Chalk or charcoal may be applied to the paper by means of short lines, as in pencil work, or they may be rubbed with the tip of the finger. When shading to give volume to round surfaces, begin shading almost inside the outline, but do not touch it. The shading should be darkest at the outer edges and fade as it recedes. To give the impression of depth, shade one side of the object heavily at the outer outline, becoming lighter as it fades. To emphasize the straight edges of an object, the shading should be darkest at the angles and fade as it recedes. A pebbled paper gives the charcoal or chalk line an interesting texture. A mixture of four parts wood alcohol to one part of white shellac makes a good fixitif. It is better to apply two thin coats than one heavy coat which may soak the paper and blur the edges of the drawing. For pen work, waterproof inks and non-absorbent bond paper give the best results.

When using water colours, make sure that you are supplied with a brush that comes to a point when dipped in water, a clean rag, and a plentiful supply of clean water. Before starting to paint, brushes should always be filled with water. They should be rinsed in clean water, and wiped with a clean rag each time a different colour is used. Plan your brush strokes carefully in advance, then work fast and with confidence. Work from light to dark; paint your skies upside down; working on moist paper will give an indefinite spread to the colour when applied.

SUGGESTED TOPICS

The first day at school.
When the circus comes to town.
Explosion in a paint factory.
War in the air.
Sports Day at camp.
Boots! Boots! Boots!
Day dreaming.
My work on the farm.
The Victory Parade.
The Jitterbugs.
Scene from my bedroom window.

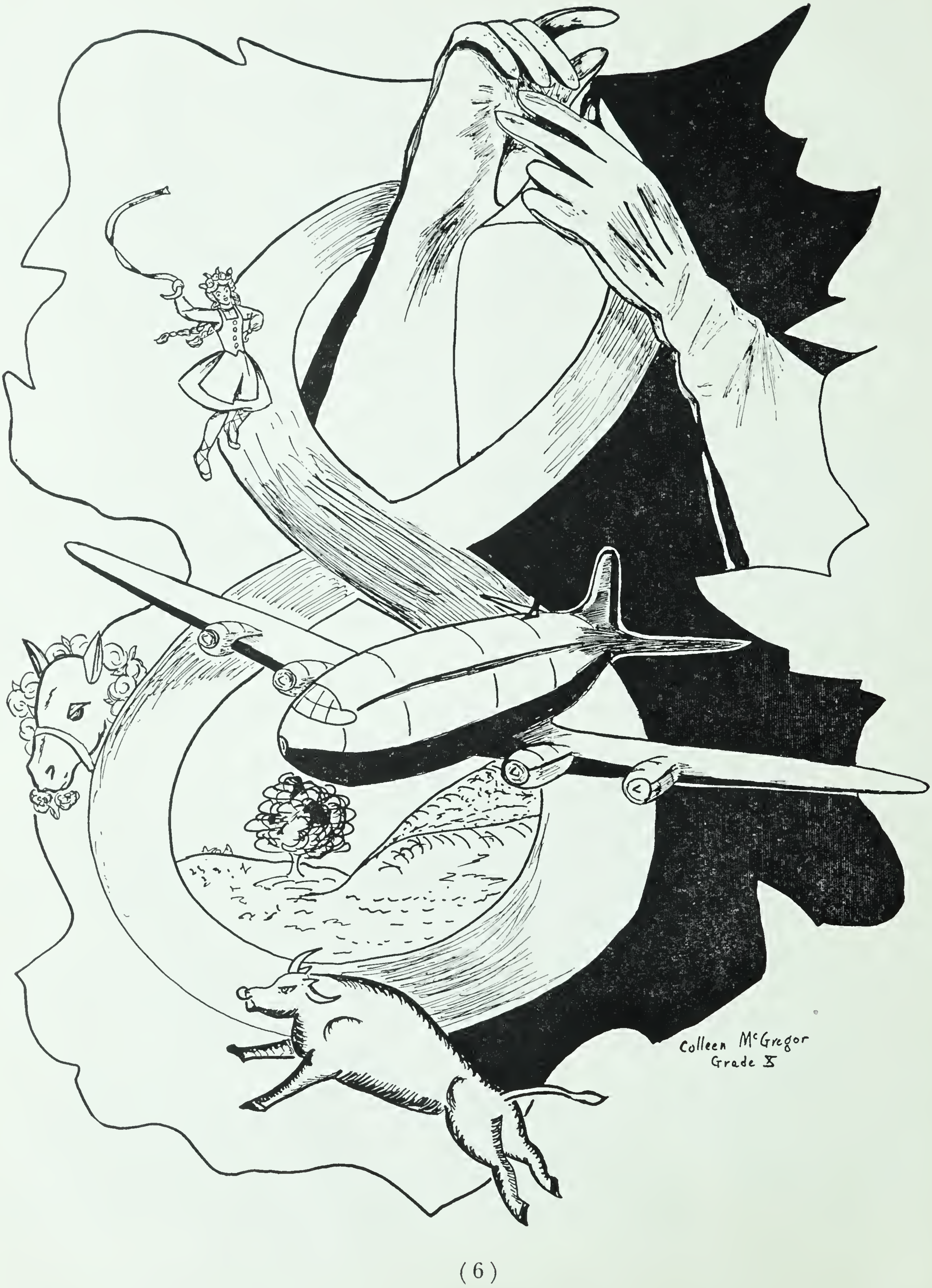
SCRIBBLE DRAWING

The scribble drawing is for the student that comes to the Art class with the complaint "I can't draw". What he really means is that he lacks the skill to make realistic drawings.

This exercise is intended to stimulate the student to look for shapes which suggest people, animals, birds, objects, etc. Unhampered by outside suggestion or interference, he is working on his own level of experience. The search is more important than the product for it helps rid the student of his self-consciousness with regard to drawing, and relieves him of copying worn-out patterns since he finds that his own discoveries are interesting and valuable.

Materials required—large sheets of manila wrapping paper, pencil, tracing paper.

1. Ask students to make large interesting scribbles all over the surface of the paper: these should include ovals, loops, lines and criss-crosses. Encourage them to hum tunes of different rhythm softly while keeping the pencil moving in time to the tune.
2. Fill in some of the shapes with the pencil, or add dots, or dashes to others to provide a texture.
3. Cut five pieces of tracing paper 6″ x 6″.
4. Now look for patterns suggested by this mass of interesting lines and spaces. Make a selection, and, placing your tracing paper over it, trace the pattern—retaining the original lines.
5. Do not hesitate to turn the scribble around—it is surprising how many different things one area might suggest when seen from various angles.
6. Repeat for the other four pieces of tracing paper.
7. Have each member of the class submit his most interesting scribble. Have a committee chose the best three.
8. Scribbles may be used as decorative pattern for kerchiefs, desk blotter corners, or book covers.


Colleen McGregor
Grade X

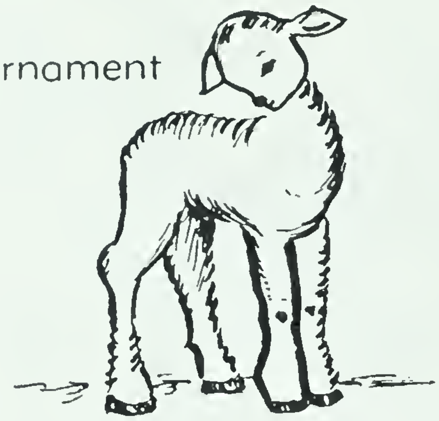
MONTAGE

Montage is another method used to promote and encourage release from the usual approach to surface composition. Here the problem is to cut out magazine and newspaper pictures and illustrations with interesting outlines and to assemble them into a unity which is itself satisfying. Such a montage may be meaningful or meaningless, depending upon the purpose of the experiment. In a meaningful montage, only those cut-outs are selected which, when assembled, are united by a single theme which is readily understood by the spectator. Since the illustrations are not fixed, they may be moved about on the surface until they fall into a pleasing arrangement. Often the student is required to add details to strengthen the arrangement. This type of illustration is becoming popular in the advertisements of the better magazines. In the meaningless montage, the problem is to arrange the cut-outs into a unity with attention being paid to interesting shape, line, texture, and colour, rather than meaning. At this point, the student who is finding this work to his taste might substitute geometric shapes for illustrations to get some idea of the problems encountered by present-day abstract painters.

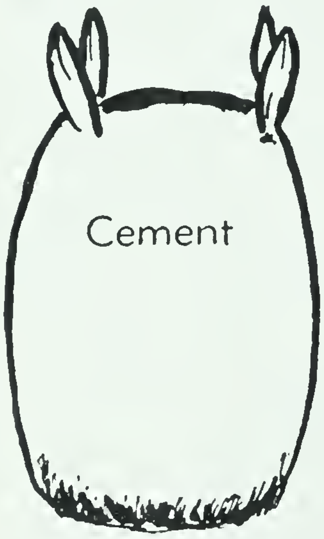
How to Improve Art Growth

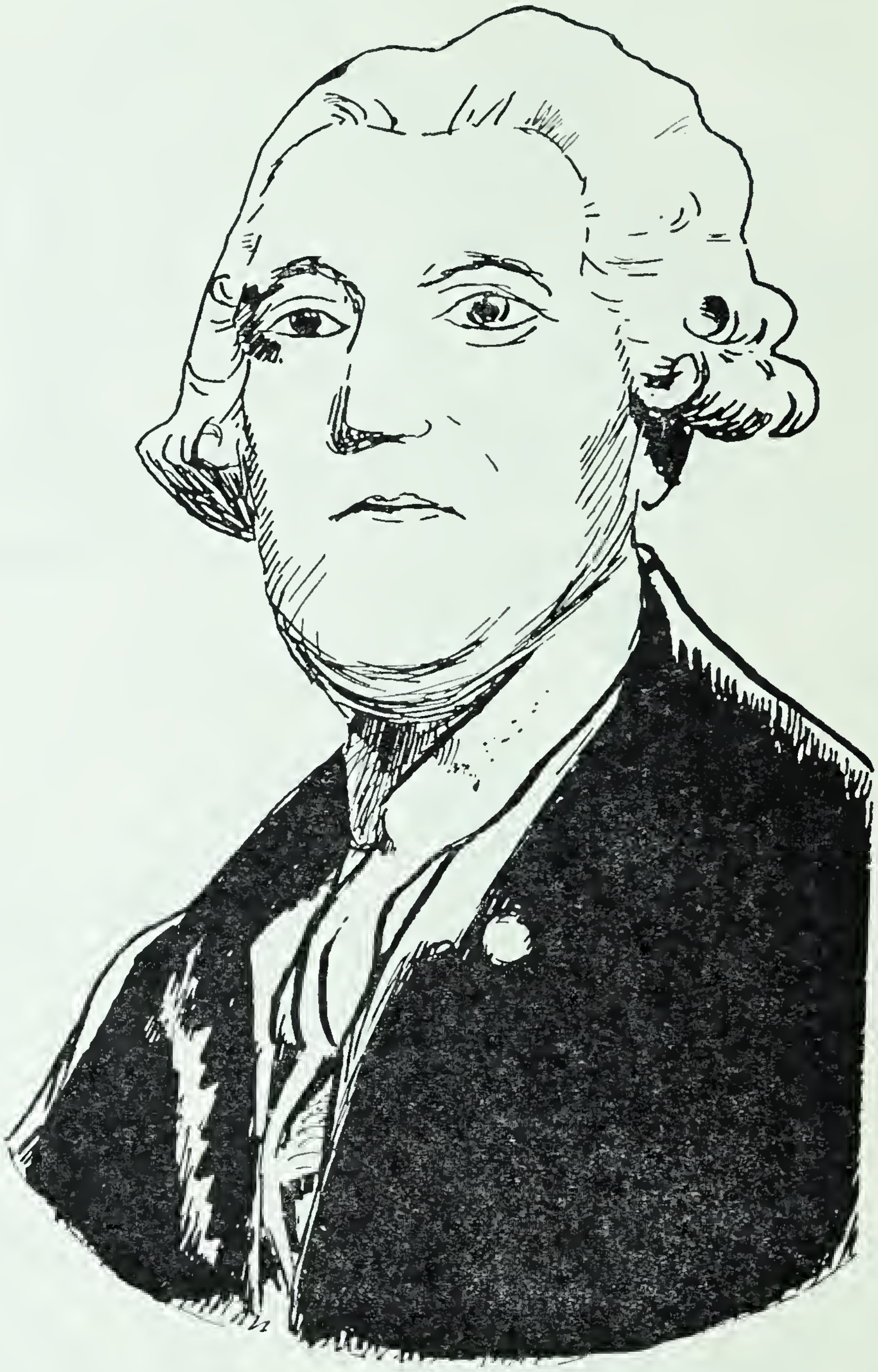
1. Try to work willingly with any new material, method, or point of view.
2. Bring to class Art materials that might be of interest to others.
3. Do some Art work outside of class that is not required by the teacher.
4. After the final instructions have been given, start without dawdling.
5. Be part of the class; use materials and tools efficiently; do not monopolize group materials; help keep the room tidy.
6. If finished before others, and the teacher is busy, get at some other Art work or consult some Art magazine until further instructions are received.
7. Do not clamour for attention by taking work to the teacher after every step for his approval; there are probably others who *really* need his help.
8. Do not ask the teacher for suggestions that you could easily find by yourself.
9. Do not become easily discouraged if mistakes are made, or if the work is not progressing as expected.
10. Do not be easily swayed by what others are doing, if your idea differs from theirs; have more confidence in your own ability.

Ornament

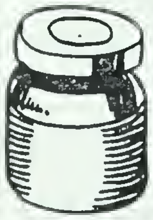


Tile

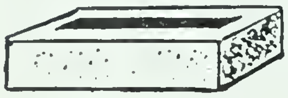




Josiah Wedgewood



Electrical Insulator



Brick

Vase

Dishes

CLAYCRAFT

Earth I am, et is most trwe,
Desdan me not, for so ar you.—Anon.

INTRODUCTION

Most students have very indefinite notions as to the significance of clay in their everyday lives. To the question, "What use is it?" the teacher may answer that work in clay will mean contact with an additional material, the use of which will involve new tools and techniques. He may point out that now you may get an insight into the occupational possibilities and advantages of the clay industry. Here is an opportunity to find out whether you have any special abilities in this particular craft. This lesson might be the beginning of a new hobby, a really worthwhile leisure activity. And, since everyone is an art consumer, it will help you to acquire a more intelligent approach to the selection, use, maintenance, and appreciation of such clay products as dishes, pitchers, vases, tiles, cement, brick, molds, insulation materials, ornaments, etc., than you otherwise might have had.

Read carefully the unit that follows. Answer the questions at the end for your own satisfaction before asking the teacher for the "Go Ahead" signal. There is no need to make all the things described in this unit, nor to do them in the order in which they appear. A working knowledge of what must be done, and an idea of the end to be achieved, is all that is necessary.

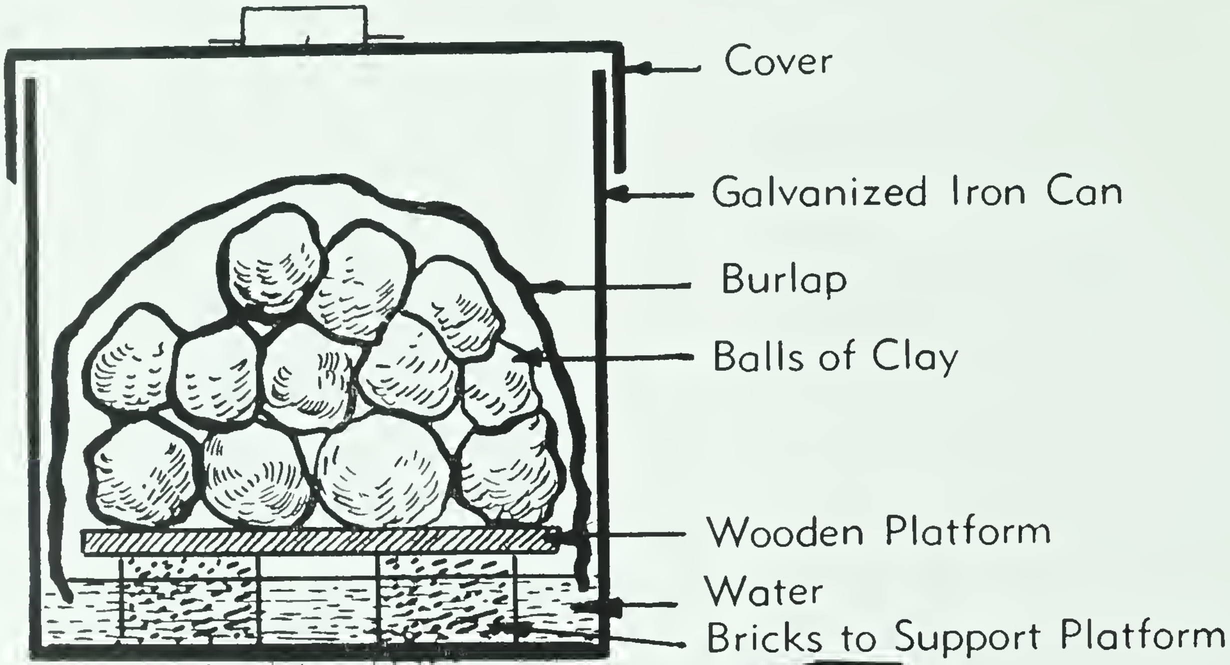
Don't dawdle over your projects. It would be better to omit Claycraft as a field of experiment if your lack of interest will mean time lost that should have been spent in working with other materials. Bon Voyage!

HISTORICAL NOTES

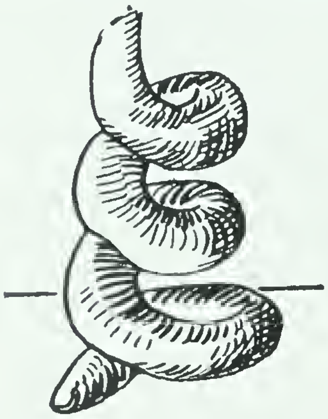
There is sufficient evidence to say that wherever clay has been found men have used it and have become, in varying degrees, craftsmen. This abundant and easily available material has throughout the ages invariably been used for the making of containers. Primitive and ancient peoples lacked our present day profusion of paper bags, cardboard cartons, wooden crates, chests, tin cans, glass bottles, celluloid boxes, and plastic jars. It was discovered very early that, as long as clay was kept dry, it was remarkably strong and tough. It is believed that the primitive vessels used to store dried meats and grains were made by scooping out the centre of a large ball of clay. Thousands of years may have elapsed before Man learned to build bowls by pressing clay slabs around basket forms. The coil method of construction came next. The decorative pattern that was usually applied, by finger-nail or twig while the clay was still moist, consisted in combinations of lines, crosses, dots, chevrons and zig-zags. When the Romans came to Britain they made many improvements in the pottery industry. Their advanced methods were probably acquired from association with Greek craftsmen. Saxon and Norman pottery remains show that the conquerors introduced designs and methods similar to those which had been in use in their native countries. The Mediaeval Church stimulated the clay arts, as it did others, to a very marked degree. The standard of excellence reached is readily seen by an examination of the tiled floors of the Gothic monasteries and cathedrals. But England's chief claim to fame in the world of pottery is due to the work of the Staffordshire potters, and to Josiah Wedgewood (1730-1795) in particular. Consult your library for additional information about this "Prince of Potters".

SOURCE OF MATERIAL

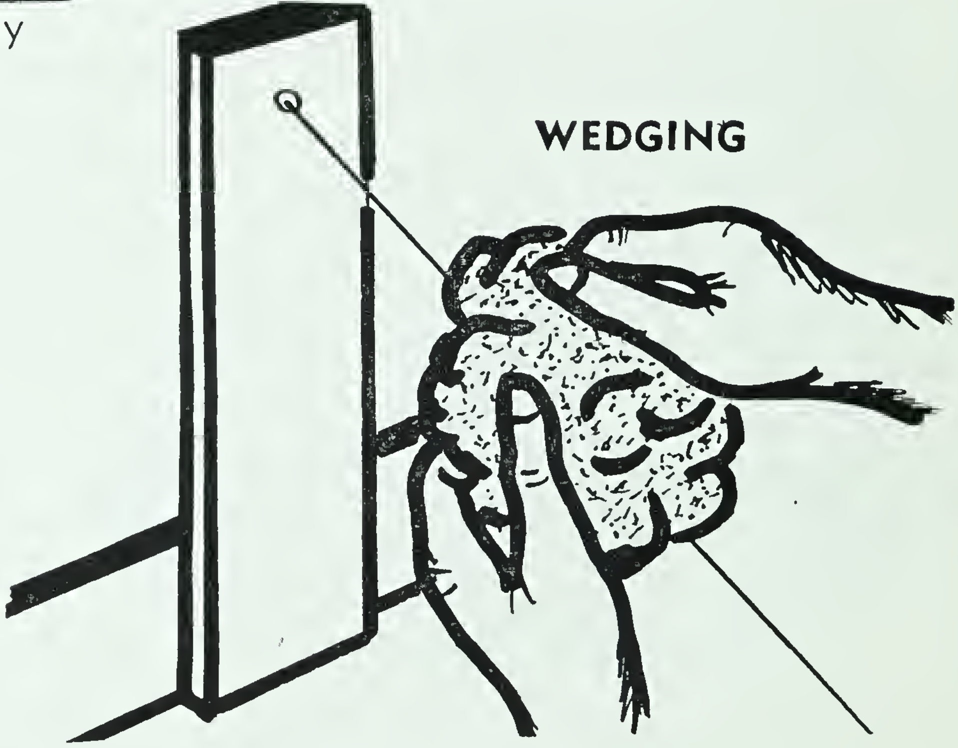
It is advisable to procure clay from the least expensive and most available source. The bed of a creek, or the bank of a hill will provide almost unlimited quantities. Clay from the hill must be broken up, soaked and screened to remove lumps and foreign matter; clay from the creek should be permitted to stand in some waterproof container so that the clay will settle and the water will rise to the top. The water is then poured off.



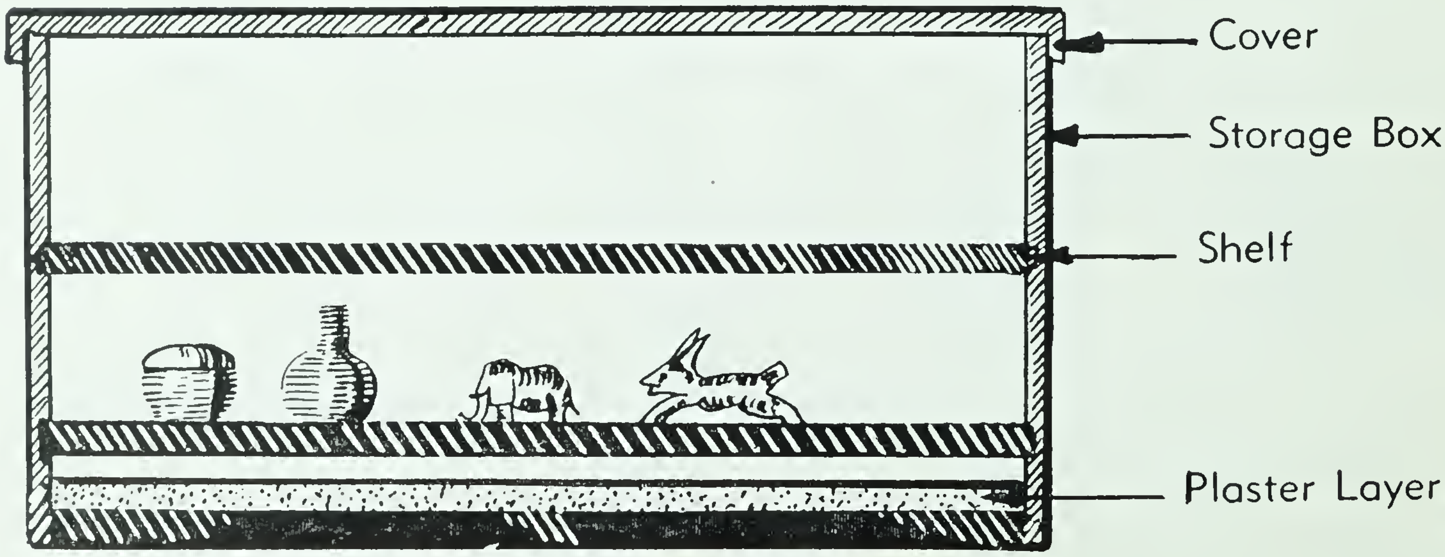
Method of keeping clay moist while stored.



Test for consistency.



WEDGING



Storage bin for unfinished clay objects.

STORAGE

Get as much clay as can be conveniently stored. A half year's supply can be kept in a large galvanized ash-can. To keep the screened clay moist, use the arrangement as illustrated in the diagram. Remember to keep the can covered at all times. Unfired clay can be used over and over again. It will be convenient to have a bin for any waste clay. A damp box for unfinished pieces should have a moist plaster bottom and a tightly-fitting cover. If a damp box is not available, a moistened cloth around the unfinished article will keep the clay from giving off its moisture and thus prevent it from hardening.

PREPARATION OF CLAY FOR USE

To be worked to its best advantage, clay must be neither so moist that handling it will leave it clinging to the hand, nor so dry that bending it or breaking it will reveal cracks in the clay. A good test for the proper consistency is to take a piece of clay an inch long and nearly as thick, and roll it between the palms until it is as thick as a pencil. Then try making a spiral of it. If it is too hard, it breaks; if it is too soft, it will not stand unsupported. When a coil of clay can be spiralled, it has reached the condition when it can best be worked. To get soft clay to the best handling condition, allow it to stand in the open air, or on a plaster bat, to lose the excess moisture. If the clay is too hard, add water, soft clay, or both, kneading the mass for some time. To remove any lumps or air *cut* the clay by means of a taut, firmly-fixed wire; then *slap* the two pieces together, or *throw* the lumps on the table. *Repeat* this process, which is called "wedging", until no tiny holes are visible on the cut surface.

PREPARATION OF PLASTER FOR USE

Clay is most conveniently handled on a plaster base or "bat". Plaster of Paris can be secured from most drug or hardware stores. First *coat* the inside of the container to be used as a pattern or mold for the bat (a pie tin is ideal for this work) with liquid soap or vaseline, or any other fatty substance. Make sure that *all* of the inside of the container is covered. Try to *visualize* the amount of water necessary to fill the pie tin, and put that amount of water into another container. *Sprinkle* the plaster into the water until a slight mound of plaster rises above the surface. Use the hand to *stir* the mixture from the bottom and to break up any lumps. Pour when the hand senses that the mixture is getting thick, and begins to adhere to the fingers.

Clean the container holding the mixture *immediately* with newspapers. If the plaster is allowed to remain it will harden, and its removal will be difficult. *Never* pour the excess plaster into a sink as it will clog the drains. When the plaster in the mold has hardened, turn it upside down. Should the bat not come away from the pie tin easily, a sharp tap on the back of the tin will usually be all that is necessary to remove the clay. Remember to clean the fatty surface from both the plaster and pie tin.

PLASTER OF PARIS PLAQUE

Materials required—salad plate, plaster of Paris, water, mixing bowl, "turps", thin wire 3″ long (small hair-pin or picture wire will do), "v" lino tool, vaseline or liquid soap, carbon paper.

1. Cover the inner surface of the plate with a *thin* coat of vaseline.
2. Mix a small quantity of plaster with water. Stir until it begins to thicken. Pour into prepared saucer. Allow plaster to harden for ten minutes.
3. While the plaster is still soft, press the bent wire into the plaster. Allow the plaster to dry thoroughly. Remove the plaque from the plate.
4. Clean vaseline from the plaque and plate using a cloth dipped in turpentine. Allow the surface of the plaque to dry.
5. By means of carbon paper transfer a previously prepared design unit to the sur-

face that does not have the wire. Your school, club, or scout troop crest would be appropriate.

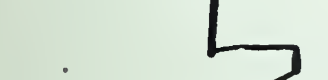
6. Following the lines of the tracing, cut a "v" groove with the lino tool.
7. Use gum eraser to remove any tracing marks.

MODELLING

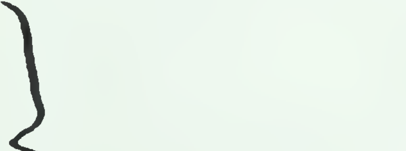
How would you like to laugh and learn? You can, if you will, model "just for fun". You will enjoy making and creating animals, figures, and faces according to *your* fancy, and at the same time you will get to know a material which requires no intermediate tool. When you do that you will be taking giant strides through the centuries to the New Stone Age. You will be faced with the same problems and derive the same satisfactions that early Man experienced when he fashioned something useful out of hitherto idle material.

From the storage bin get a lump of clay about the size of a large apple. If it hasn't the proper consistency, wedge it until it has. This is a first "must" in all clay work. You will also need a bowl of water (this to be shared with a neighbour), a modelling tool, and a few sheets of newspaper to cover the desk. Now the fun begins! Make anything you want. If to-day is one of those days when you cannot think of a thing, perhaps the following suggestions will help: dog, cat, elephant, bear, squirrel, horse, frog, lizard, dinosaur, sea monster, streamlined auto, army tank, etc., etc. Remember that you are *not* expected to make a model that looks like the real thing. This is a get-acquainted experiment. Do not worry about accuracy of detail, size, or proportion. Find out how the clay feels, and see into how many different shapes it can be molded.

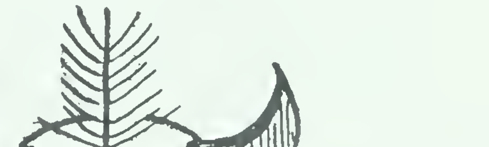
If you are going to model an animal, be sure to make the legs sufficiently thick and solid to support the body, neck, and head. Don't be afraid to try modelling a figure, preferably in action. To do this recall the positions of each of the limbs, the slant of the shoulders, the turn of the hips, and the turn and angle of the head. Keep these things in mind, and you will be surprised at your own ability. Or, perhaps you are interested in fashioning queer heads, like the masks worn by the North American Indian medicine men? It is surprising how many odd faces and expressions you can get by changing *from normal* the size, shape, and slant of the nose; the shape and direction of the mouth; the fulness or hollowness of the cheeks; and the slant and shape of the forehead. See diagrams for method used in making clay heads. Two coats of house enamel will add an interesting touch of colour to your work.



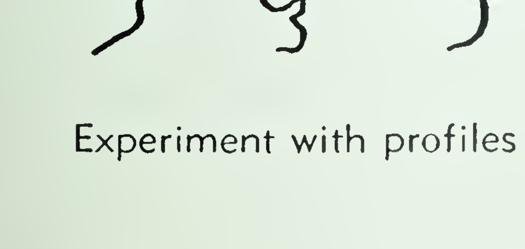
Crumpled paper



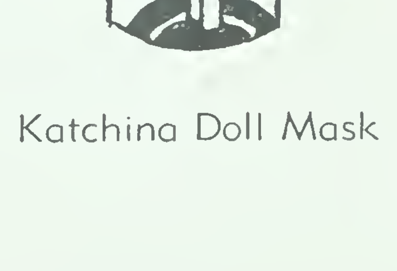
Layer of clay over crumpled paper



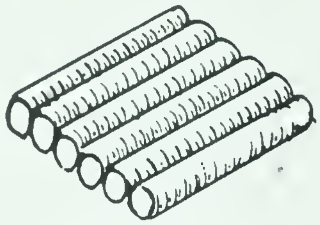
How to model a face



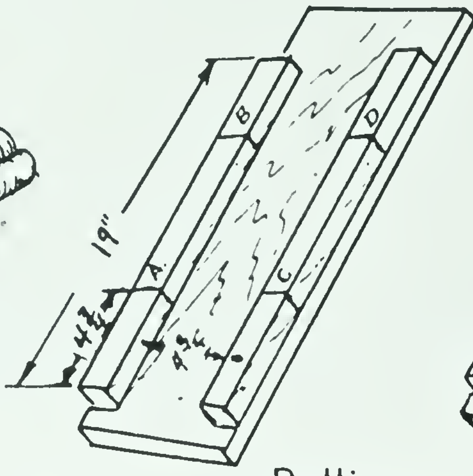
Experiment with profiles



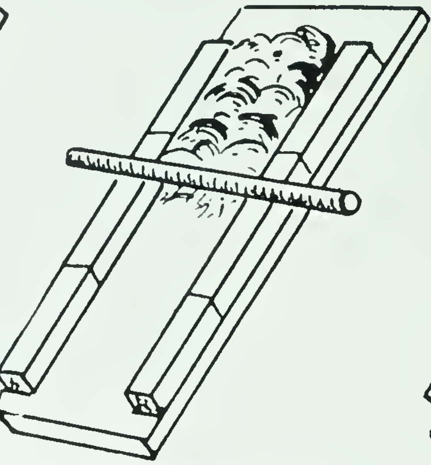
Katchina Doll Mask



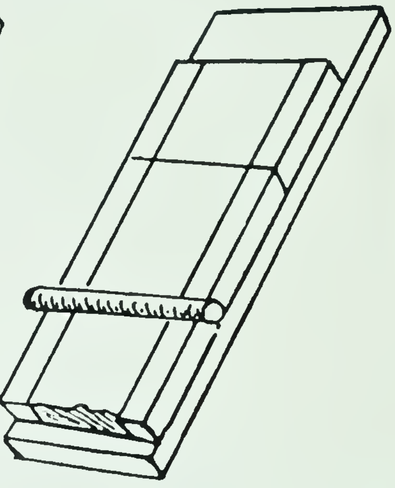
Single tile



Tile Jig
Paint inner surfaces with plaster of Paris
Make saw cuts at A, B, C, and D.

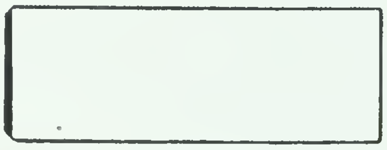


Rolling out the prepared clay

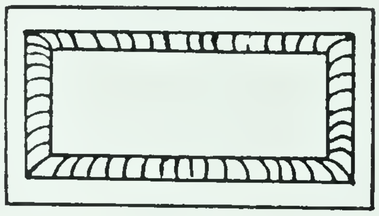


Clay rolled out and ready to be cut

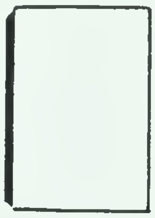
FLAT-SIDED POTTERY



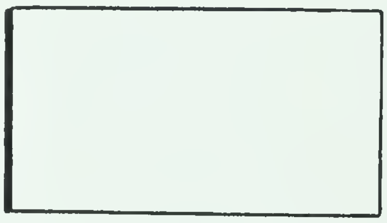
Side



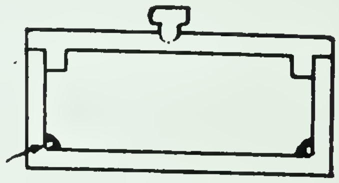
Inside of cover pottery box



End piece

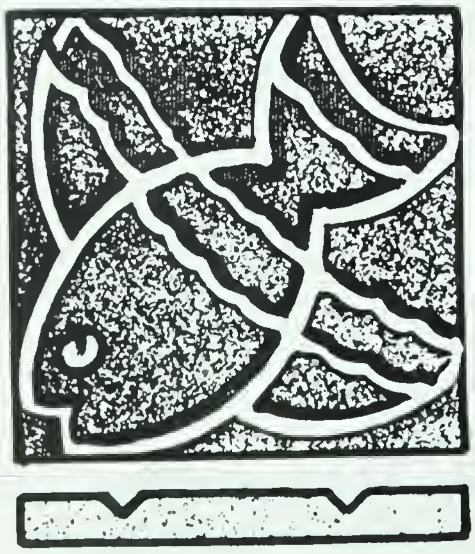


Base

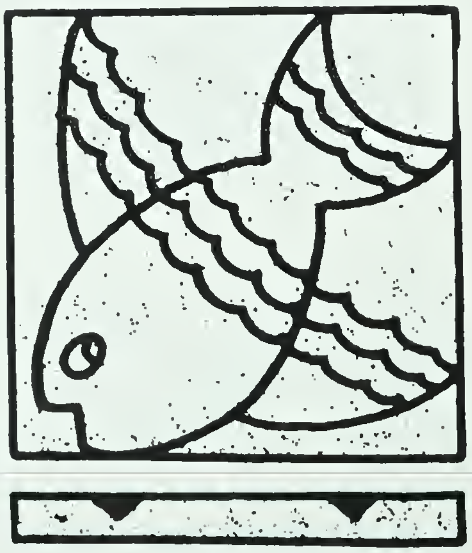


Note method of fitting cover.

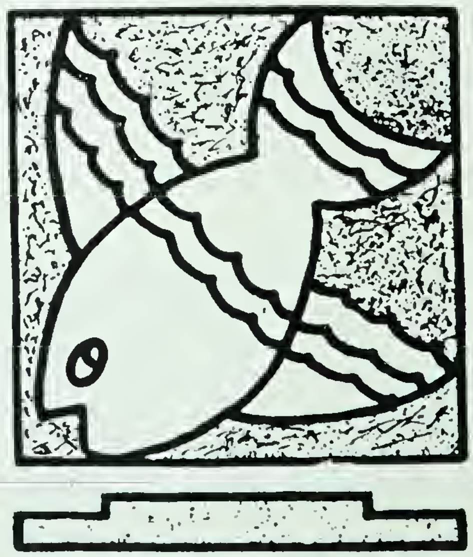
DECORATION METHODS



Incised



Inlaid



Relief

Tile Making

This section of claycraft has had a long and interesting history. The floors of the Roman public baths, Byzantine mosques, and mediaeval Gothic churches provide ample evidence of this. Can you make a list of the places where tile or mosaics are used to-day? Find out why they are used in those particular places.

Because clay has a tendency to shrink when drying, it is necessary to make each clay object about ten percent larger than the required size. In order to get a tile four inches square, make the tile about 4¾″ to a side. If the moist clay is ¾″ thick, it will probably shrink to about half an inch.

To make a *single tile*, 4″ x 4″, roll out a long coil of clay ¾″ thick, and cut off enough coils which, when laid parallel and touching, cover an area approximately 4¾″ x 4¾″. Use fingers to weld the seams together on both sides. Trim off the rough edges with a knife. Allow to dry to a leather-hard condition. Remove a panel on the underside, and turn over frequently when drying, to prevent warping.

When a number of tiles of the same size and shape are required, it is advisable to make a tile jig. See diagram for construction. Put the previously prepared clay between the slats of the jig. Using dowel as a rolling pin, roll the lump of clay into a flat pancake that will completely fill the space between the slats and extend beyond the ends. Allow the clay to dry slowly at room temperature. Shrinkage will permit the clay, when leather hard, to be easily removed from the jig.

Methods of Decoration

When clay is leather hard, it may be safely handled without losing its shape. Then it is in a suitable condition to be decorated, which can be carried on in any, or all the ways outlined below. For each method the decorative pattern is transferred to the face of the tile by pressing the lines of the pattern into the clay with a modelling tool.

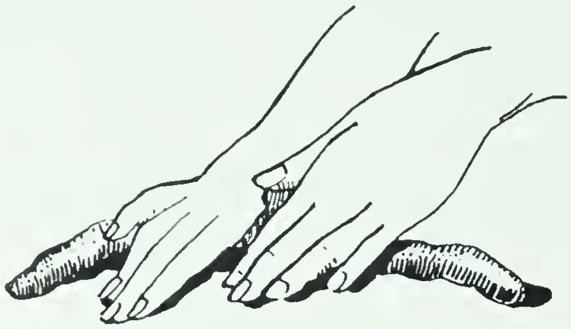
1. Incised decoration. Lino tools are ideal for this work. Cut a "v" or a "u" groove to about ⅛″ depth wherever the traced depression appears. Put the tile aside for further drying. When completely dry, smooth the surface with fine sandpaper or with a dampened sponge.
2. Inlaid decoration. Transfer design unit to the tile. Cut grooves as outlined in incised decoration. Fill the grooves with a differently-coloured clay, making sure that the inlaid clay is firmly pressed into the incised groove and extends slightly above the surface of the tile. Allow to dry thoroughly. Sandpaper the excess of the inlay down to the surface of the tile.
3. Relief decoration. Transfer design. Repeat as for incised work, but make the incisions deeper. Cut away the background clay to leave the design in high relief.

Flat-sided Pottery

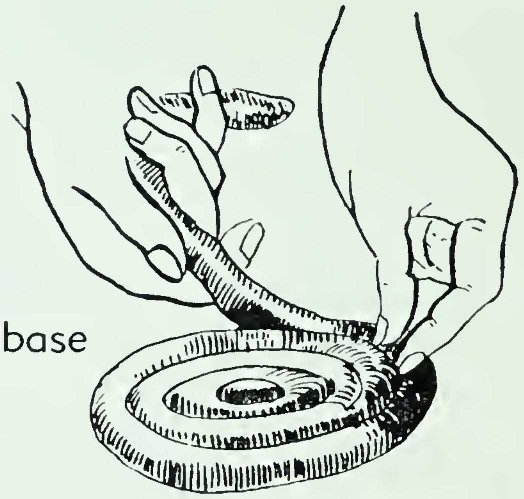
Flat-sided pottery may be made by using various sizes of tiles. Prepare the clay and make large tiles. Make a cardboard template for each side. When the large tiles are approaching leather-hardness, use the templates to cut the clay to the required size. Make the base first. Put the patterns on the sides to be decorated. Prepare slip (clay in an almost fluid condition), and paint it on the portions of the slabs to be joined. Hold the side *upon* the base, and press the side firmly into an upright position. Place a thin coil of clay along the inside joint. Use fingers to weld the coil into the side and base. Add other sides in the same manner. Allow to dry at room temperature. Smooth with damp sponge or fine sandpaper. Fire.

Pottery Box

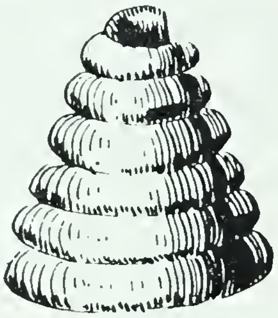
Repeat method as for flat-sided pottery. For cover, make a tile that has the same dimensions as the base. In order to get a well-fitting lid, weld a coil of clay to the side of the lid that will be touching the box, just inside the inner wall. Attach knob for handle. Fire.



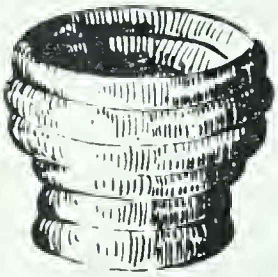
Making the coil



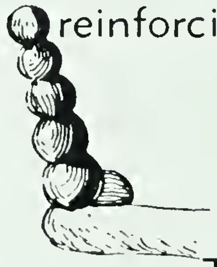
Spiral for the base



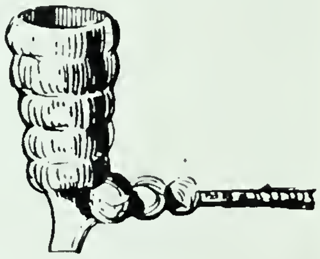
Decreasing the diameter



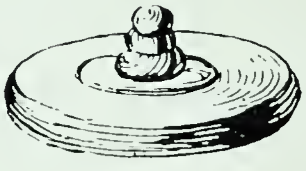
Increasing the diameter



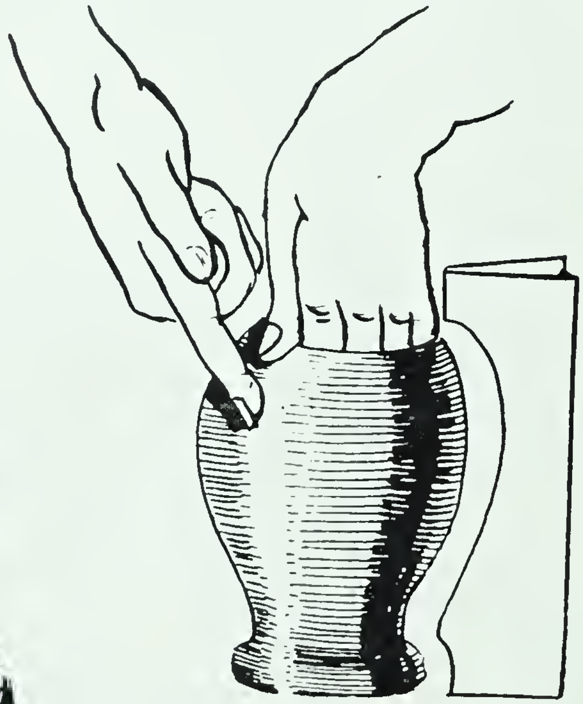
Cross-section showing reinforcing coil



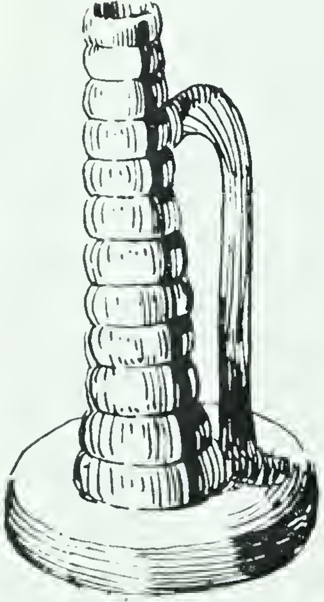
Indian pipe—
The thin twig during the
firing will turn to ash.



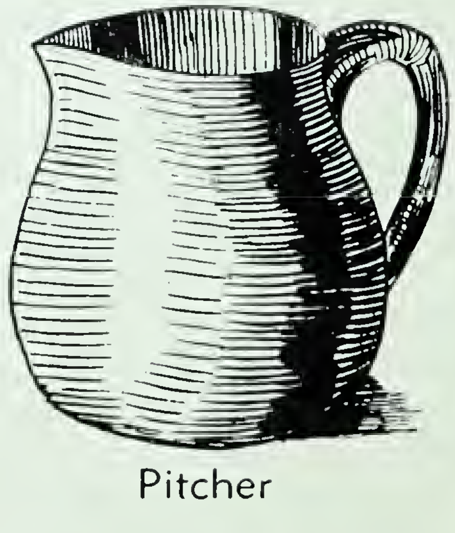
Jar cover



Cardboard template



Coiled candlestick



Pitcher

Firing

If the school does not have a kiln, arrangements may be made with the local brick factory to have the clay units fired there. If this, too, is not available, an open-fire method, similar to that employed by the North American Indians can be used to make biscuit-ware, a term applied to clay that has been hardened by heat, left in an unglazed, porous condition.

Get a strong metal container, on the bottom of which there has been placed a thick layer of dry sand. Place the clay pieces to be fired on this layer in such a manner that they will neither touch one another nor the outside walls of the container. Cover these pieces with a thick layer of dry sand. Repeat with layers of clay objects and sand until the container is filled. Cover tightly. Surround the container with closely-piled or thick pieces of wood, so that the initial blaze will be slow and steady. After the container and its contents have become heated, carefully add wood to the fire, leaving sufficient air spaces between the pieces. The blaze will then be strong and the container will get red hot. This heat should be continued for at least an hour. Then the fire should be allowed to die very slowly. Do not disturb the embers or remove the cover until completely cooled, a state reached between twelve and twenty-four hours after time of highest temperature.

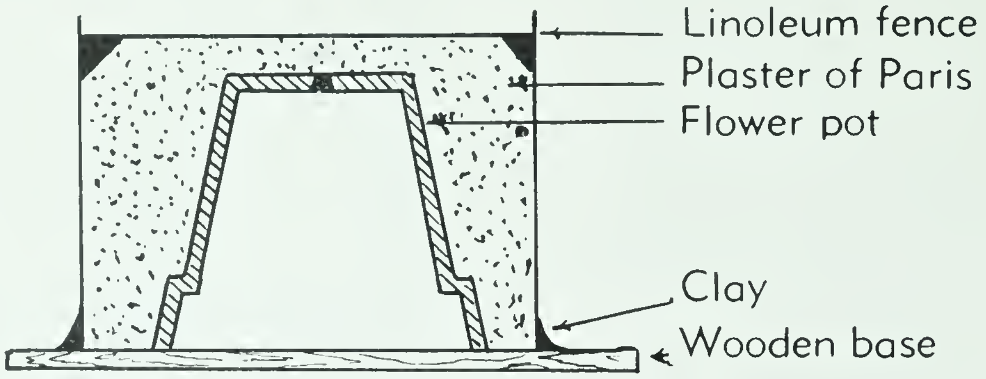
Biscuit-fired clay articles may be decorated by using tempera paints. Seal the inner surface with melted paraffin. The outer, or face surface, may be covered with a clear varnish.

Pottery—The Coil Method

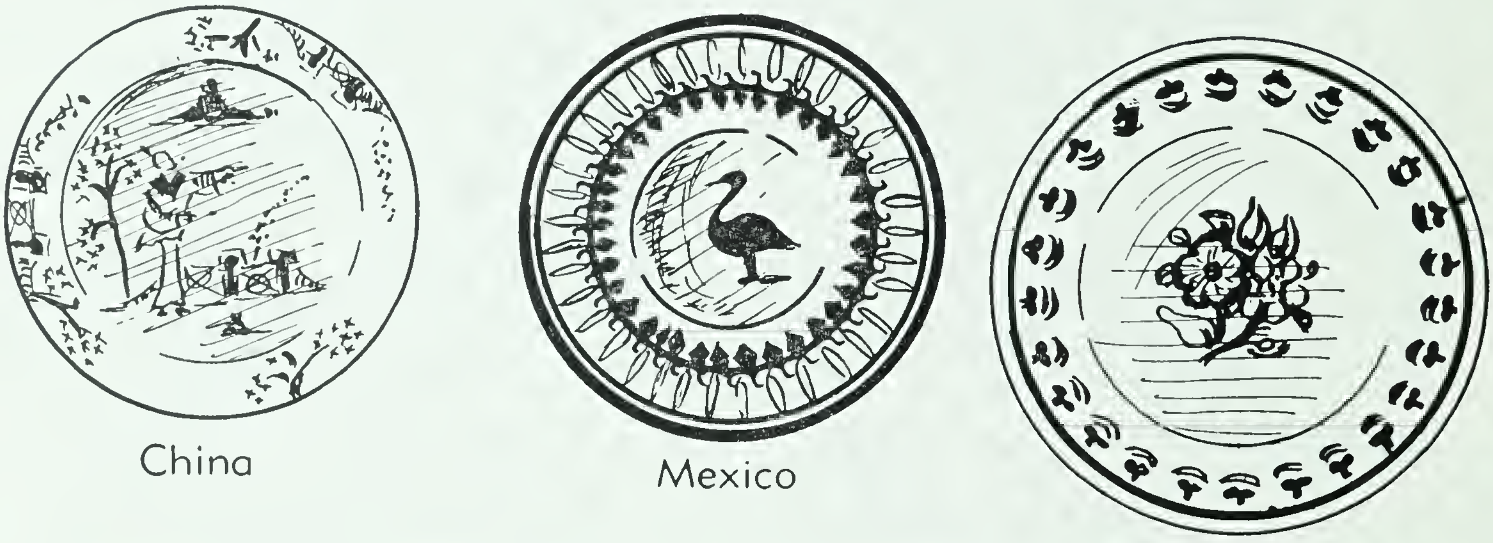
Materials required—clay, water, plaster bat, modelling tools, wire, cardboard, sandpaper.

1. Cut a piece of cardboard longer and wider than the dimensions of the proposed bowl. Bend the cardboard as shown in diagram. Using the closed edge as the central axis of the bowl, draw a line to represent the outline of the bowl, the widest part being either above or below the middle point of the axis, and smaller or larger than the base. When satisfied with the outline shape, cut it from the cardboard. You now have a silhouette pattern of the bowl. Be careful not to destroy the outline of the remaining part of the cardboard; it will serve as a template while building the bowl.
2. Prepare the clay for use. Roll out rope-like coils of clay ½″ to ¾″ in thickness in 10″ lengths. Coils should be made quickly and only as required.
3. Fix one end of the coil to the plaster bat. Spiral the coil about this fixed end until the coiled clap pancake is large enough to serve as a base for the proposed bowl. Weld the coils together. Seal the seams with soft clay.
4. Prepare additional coils. Bevel the end of the starting coil. Place the first coil on the outside edge of the base. Follow the edge until the bevelled portion is reached. Break off the coil at this point, bevel the end, and make a lap joint. Weld the coil to the base. Reinforce only *this first coil* by placing a smaller coil just inside it, and welding it both to the base and first coil.
5. Dampen the top of the coil that is to receive the fresh coil. At a point removed from the last joint, start a coil on the top of the coil below. Repeat as in step 4 above. Weld the seams between the coils.
6. To increase the diameter of the bowl, place the new coil toward the outer edge of the coil below; to decrease the diameter place the new coil towards the inner edge of the coil below. See diagram.
7. Check the outline of the bowl as the coils are added by moving the template around the bowl. Make the changes necessary to have the outline of the bowl correspond with that of the template. See diagram.
8. Round off the last coil to give the bowl a neat and finished appearance.

—Using this method of construction,

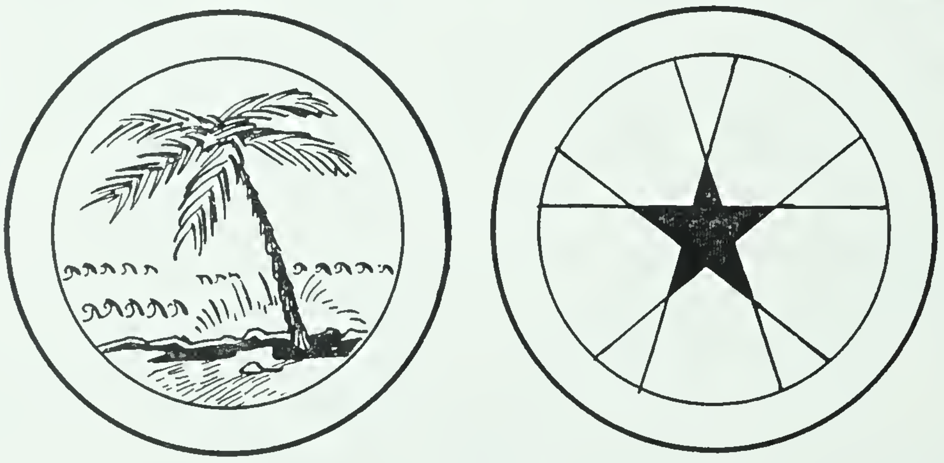


Characteristic national pattern as shown on plates.


China

Mexico

England



Student decoration for clay plates.

Indian pipes, animals, candle-sticks, etc., may be made.

—Flat coils, instead of round ones, are sometimes used in initial bowl projects. York Honoré describes this slab method very fully in his book "Pottery From the Ground Up". The wide, flat coils not only permit the bowl to be made in less time, but since there are fewer joints, the possibility of breakage during firing is reduced. To get a circular base for such a bowl, roll out a slab of wedged clay, and use the open end of a tumbler or tin can as a cookie-cutter is used. Prepare another slab of clay in the tile jig. Cut flat coils about 1½" wide. Build bowl as outlined above.

9. Allow the bowl to dry at room temperature until leather hard. Decorate. Remember that a bowl is a spherical object and that the units of the pattern should be related to, and emphasize, the shape.
10. When the bowl is completely dried, go over it with a slightly dampened sponge to remove any rough spots.

    —To make a pitcher, repeat the steps required for the making of the bowl. Pinch spout as shown in diagram. Roll out a long coil to serve as a handle. Weld handle to leather hard bowl with slip.
11. Fire.

Single Plaster of Paris Mold

Molds are used extensively in industry for the purpose of making accurate reproductions quickly and cheaply.

Materials required—flower pot (any bowl that has no undercuts and whose widest portion is at the top), plaster of Paris, mixing bowl, glass or wood base, linoleum strip, wire or string, clay, vaseline or liquid soap.

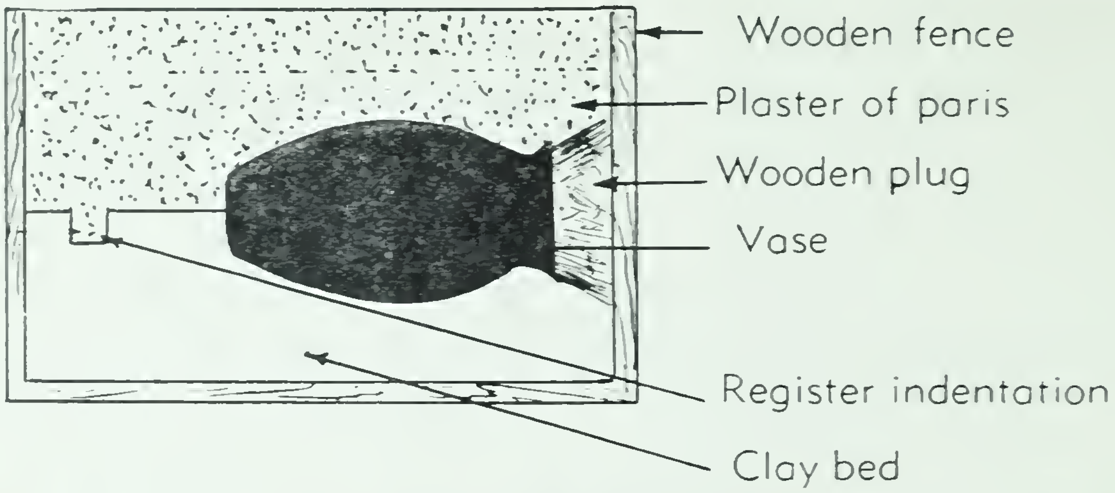
1. Set up the materials as shown in the diagram. Place the open end of the flower pot down on the base, the surface of which has been previously covered with vaseline. Surround the flower pot with a wall of linoleum leaving at least 1½" between it and the mouth of the pot, and extending at least 1" above the inverted bottom. Fasten the overlapping ends of the linoleum together. Seal the joint made by these ends, and the seam between the linoleum and the base with moist clay.
2. Seal the opening in the flower pot with a pinch of clay.
3. Cover the outer surface generously with vaseline.
4. In the mixing bowl prepare the plaster for pouring. See preparation of plaster for use page 11.
5. Before the plaster begins to thicken, use a soft brush to cover the flower pot with a thin coat of plaster. Continue to stir plaster until it thickens. *Pour!* Allow plaster to stand for about thirty minutes. During this period it will have set. Remove the linoleum fence. Cut the edge off the mold while it is still soft to prevent chipping.
6. When the plaster has thoroughly hardened, remove the flower pot from the mold. Should it refuse to come free, a sharp twist in the mold will be all that is necessary to remove it. When the inside of the mold is thoroughly dry, remove the vaseline by wiping the surface with a cloth previously dipped in turpentine. The mold must be clean and dry before it can be used again.

Ornamental Clay Plates

The procedure of pressing clay into or around molds is very old. It is possible in this way to make a flower pot using the plaster mold made in the preceding project. In the project that follows, clay is to be pressed around the mold, which, in this case, is a large dinner plate.

Materials required—clay, dinner plate, vaseline, cloth, carbon paper, sandpaper, tempera paints, varnish.

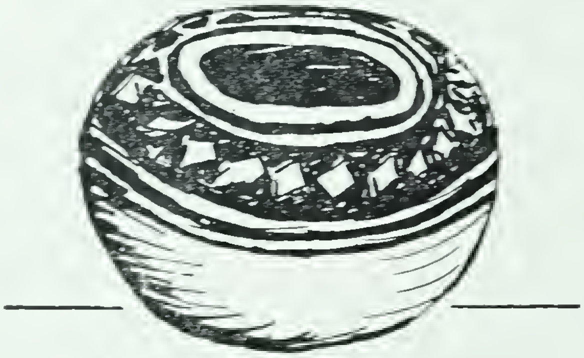
1. Roll out previously wedged clay into a large slab.
2. Cover the outer surface of the plate with a coating of vaseline.



CONTEMPORARY POTTERY

Scandanavian,

Canadian



Prehistoric N.A. Indian

English,

EXAMPLES OF THE POTTER'S ART THROUGH THE CENTURIES

Classic Greek III Cent. B.C.

Chinese

Persian
XIII Cent. A.D.

English
XVIII Cent. A.D.

3. Place the slab of clay on the prepared surface of the plate. Cut off excess clay.
4. To keep the edges of the clay slab moist and check excessive drying, cover with a moist cloth.
5. Allow the clay to dry slowly. Remove from mold when leather hard.
6. When thoroughly dry, use moist sponge to remove any rough spots or sharp edges.
7. Fire.
8. Decorate the inner surface of the plate by tracing a previously made design unit by means of carbon paper. (Remember to keep your design unit large). Use powdered tempera or showcard colours.
9. Varnish both sides and allow to dry.

HOW TO MAKE SLIP

Materials required—clay, water, fine copper wire screen or organdy screen, two pails or jugs.

1. Knead a lump of clay to the consistency of putty.
2. Tear the clay prepared above into many little pieces.
3. Put the pieces into a container and fill it three-quarters full with warm water.
4. Squeeze clay pieces between the fingers until they dissolve.
5. Add warm water as the work progresses. The mixture should have the consistency of thick cream.
6. Place screen over the empty container. Pour the mixture through the screen.
7. *Slowly* pour the strained mixture from container to container to rid the mixture of any air bubbles. The slip is now ready to be used.

—Slip is used extensively in the making of clay objects from molds. This method is thought to have originatel in England about the middle of the Eighteenth Century. It is primarily used in commercial production.

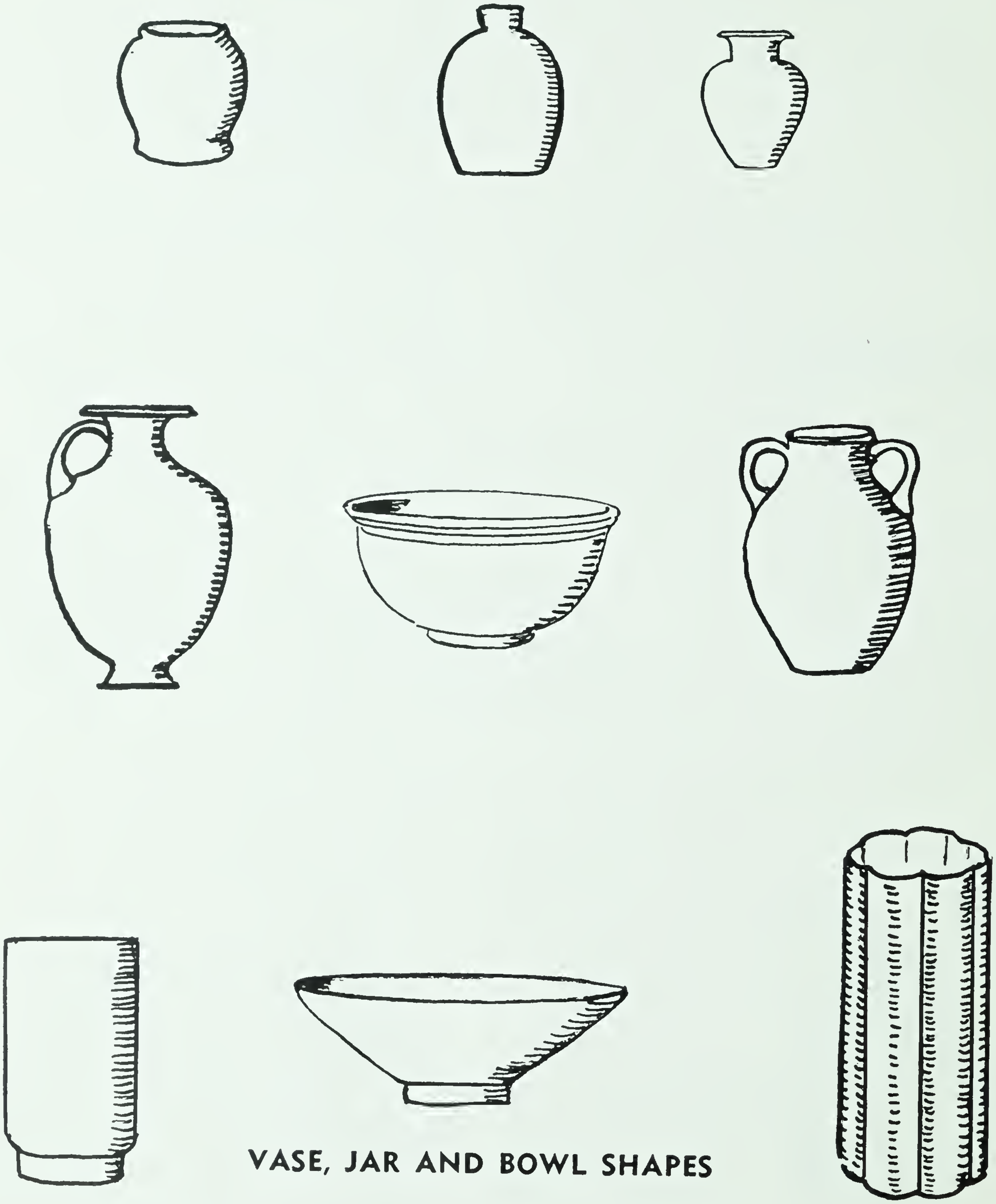
CASTING

Prepare slip. Pour prepared slip into the mold until the slip overflows. As the surface of the slip recedes below the top of the mold (the plaster is absorbing the water in the slip, and the clay is adhering to the walls), it will be necessary to add more slip. By drawing a straight edge over the top of the mold, it is possible to determine the thickness of the clay shell deposited on the side of the mold. When the desired thickness has been reached, pour back into the bowl the slip that has not been absorbed. Invert the mold, keeping one edge raised from the table (to prevent the edge of the newly cast bowl from sticking to the table). After ten minutes, turn the mold right side up and allow to dry for three-quarters of an hour. The further absorption of the water from the clay will cause the shell to shrink away from the sides of the mold thus making the removal of the cast bowl an easy matter.

TO MAKE A TWO-PIECE MOLD

Materials—vase, clay, plaster of Paris, water, wooden frame for fence, liquid soap, wooden plug, deep basin, knife.

1. Select an object, half of whose outline will not contain any undercuts.
2. Cover the outside of the object with liquid soap.
3. Secure boards for a wall or fence that will enclose a space leaving at least 1″ between the widest part and edge, and will be at least 1½″ higher than the vase when laid on its side.
4. Plug the mouth of the vase to keep the plaster out.
5. The plugged end is laid flush against the side of the wooden wall. Eventually the space occupied by the plug will provide a hole that will allow the casting material to be poured into the mold.
6. Cover half the vase in soft clay as shown in diagram. Smooth the surface of the clay. Cover the exposed portion of the vase, clay surface, and wooden fence with a coating of liquid soap.
7. Pour plaster, when prepared, into fenced portion of the mold. Allow the plaster to set for twenty minutes before removing the wooden walls.



VASE, JAR AND BOWL SHAPES

8. When the plaster has hardened sufficiently so that handling will not affect the mold, invert the mold. The clay portion is now on top and the plaster is resting on the table.
9. Carefully remove the clay from the plaster.
10. Cut out indentations in the portion of the plaster surface that is not confined to the vase shape to get a true register for the other half of the mold.
11. With liquid soap, cover the register indentations, the extending portions of the vase, and wooden plug. Allow to dry.
12. Surround mold with fence. Prepare and pour plaster.
13. When the plaster has hardened, remove the wooden fence, and insert a knife along plaster line to separate the parts of the mold.
14. When casting a clay vase
    a. Prepare slip, being careful to expel the air bubbles.
    b. Carefully interlock the two sides of the mold and seal line of meeting with soft clay.
    c. Pour slip slowly into the mold.
    d. Keep the mold filled with slip. Make additions when the surface of the slip recedes below the surface of the mold. Continue to add slip from ten to fifteen minutes, depending upon the thickness of the walls desired. When the desired thickness is obtained, allow the slip to recede below the surface of the mold.
    e. Invert the mold and pour the excess slip into a container. Leave the inverted mold in such a position that any additional slip may easily drain away. When the drainage is complete, turn the mold right side up, and remove any clay that might have adhered to the pouring surface.
    f. Lay mold on its side. Allow to dry until the clay has shrunk away from the plaster to allow one of the sides to be removed.
    g. Allow the cast to remain in the plaster until it has become sufficiently hard to remove without injuring or damaging the shape.
    h. When leather hard, remove all seam marks with modelling tool.
    i. Smooth. Decorate. Allow to dry thoroughly.
    j. Fire.

—Biscuit-fired vases may be decorated by using powder paints or showcard colours directly on the surface. The inner surface may be sealed with melted paraffin to make the vase waterproof. The outer surface containing the decorative pattern may be covered with clear varnish or clear lacquer.

QUESTIONS

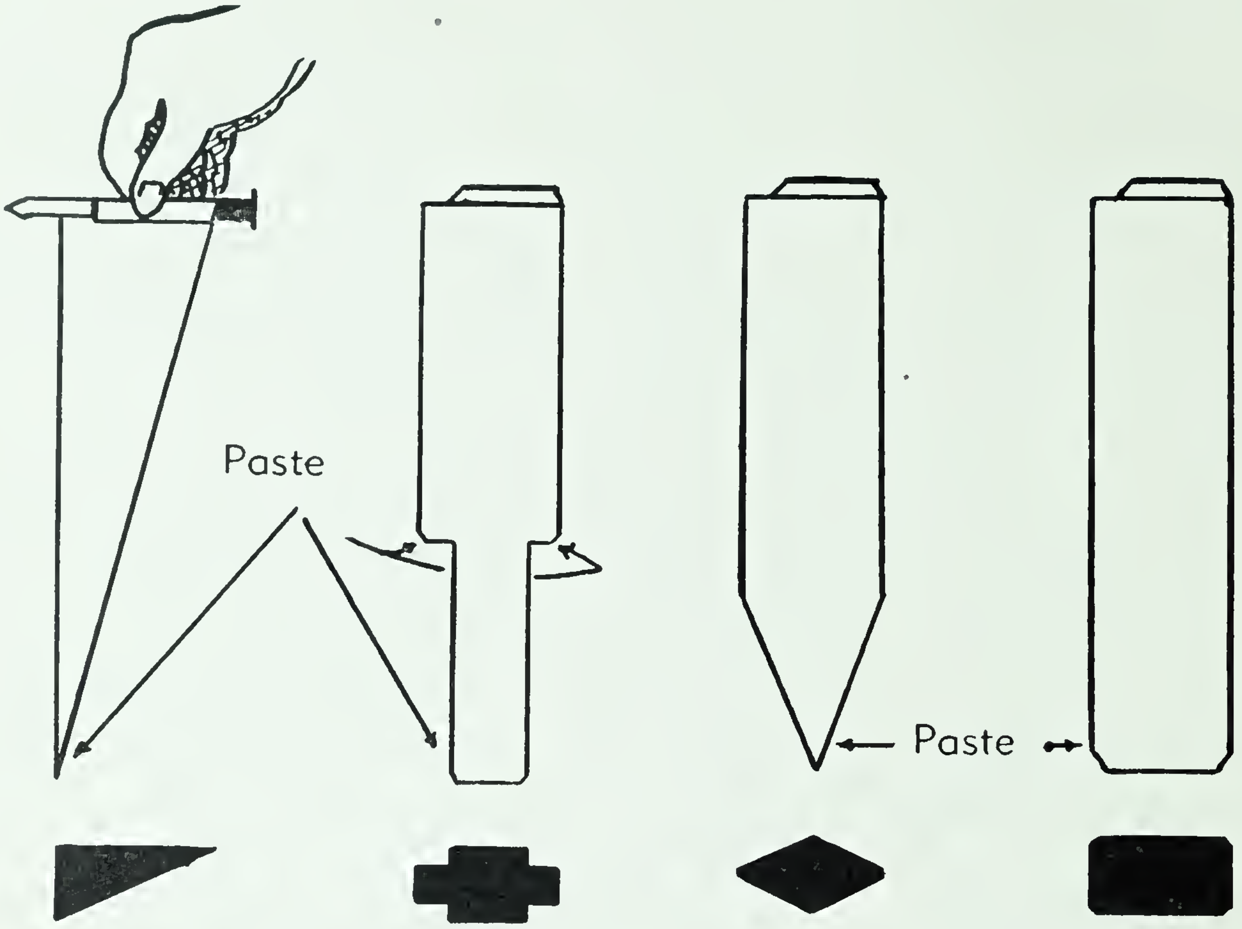
1. Give three reasons for thinking that work in clay is a worth-while activity.
2. Why were primitive and ancient peoples forced to be interested in claycraft?
3. What is the test for clay consistency?
4. State four main facts concerning the preparation of plaster for use.
5. Describe three kinds of decoration used in claycraft.
6. What is slip? How is it made? When is it used?
7. When is it not advisable to use a single mold?
8. Explain the meaning of the following terms as used in this unit: casting, coil, damp box, incised, jig, leather hard, plastic, warping, wedging, and Wedgewood.

ENRICHMENT ACTIVITIES

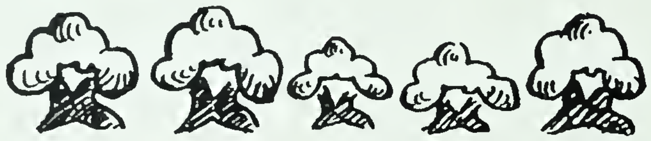
1. Find some illustrations in the Encyclopaedia showing the patterns made by the use of tiles. The note under tile making will give you a clue where to look.
2. Consult the library for literary references to clay. "Bartlett's Quotations" would be a good source. Record the two that you find most interesting.
3. If there is a brickyard or pottery in your locality, visit it and make a report on the use of clay for commercial or industrial purposes.
4. On a large outline map of the world, draw diagrams showing the types of pottery shapes to be found in the various regions of the world.

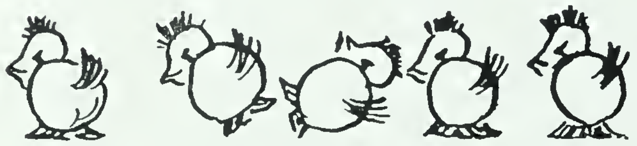
Good material often stands idle for the want of an artist.—*Seneca*

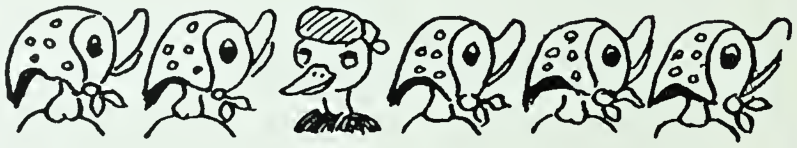
Every artist was first an amateur.—*R. W. Emerson*



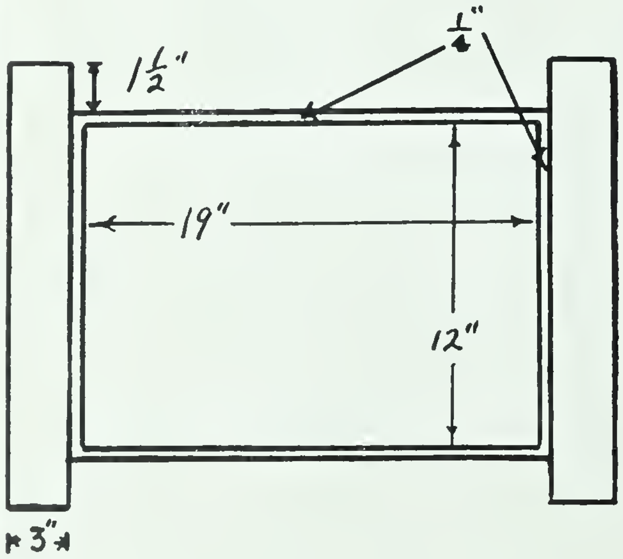
Point out the errors made in each of these border patterns.

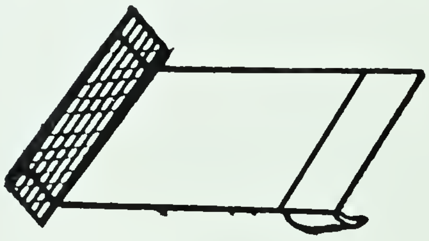




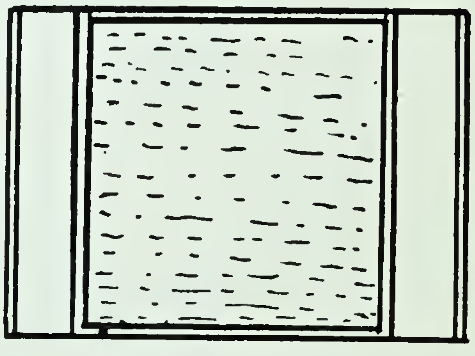


BLOTTER PAD





Folding flaps into position.



Completed pad

PAPERCRAFT

BEADS

Materials required—unglazed paper at least 14″ long (e.g. salvaged foolscap) 2″ common nail, paste, fingernail polish, needle, strong thread.

1. The size of the bead will be determined by the width and the length of the strips. A 14″ length of foolscap when wound around a 2″ common nail gives a bead nearly 3/8″ wide.
2. To make bead, roll the paper around the nail as illustrated, paste the end and remove the nail.
3. Do not be content to use only the shape of strips that are illustrated. Experiment with shapes until you get the one that pleases you most.
4. Use finger nail polish (it dries very quickly), or house enamels to paint beads. Allow to dry. String beads.

BLOTTER PAD

Materials required—a large sheet of ticket board 6½″ longer and 3½″ wider than the size of the blotter, gummed kraft paper, a sheet of book board slightly smaller than the size of the blotter, tempera, brush, scissors.

1. Cut ticket board to size and dimensions as shown in the diagram.
2. Use back of the scissors' blade to score ticket board along dotted lines.
3. Fold along the scored lines as shown in the diagram.
4. Fasten protruding ends on the underside to the back by means of gummed paper.
5. Cut book board to size to serve as a backing for the blotter.
6. Decorate the sides of the pad by means of a border design.

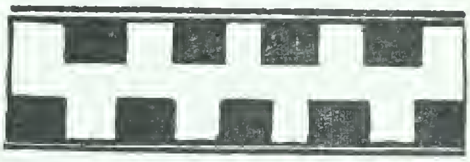
BANDS OR BORDERS

A border is one of the oldest and most common forms of design. It is to be found in the decorative systems of all ages and in various parts of the world. The border varies in complexity from the simplest lines and shapes to the most complicated interlacement forms. It is generally placed on a surface to give the spectator the impression of framing. In that connection the border is found on the edges of garments, carpets, pages of type, and the rims of plates and dishes.

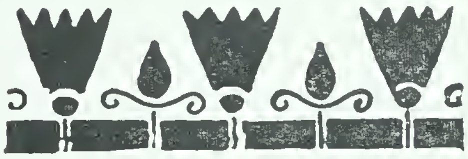
The border may be defined as a pattern in which the decorative units of the *same* size, same shape, and same position are repeated at equal intervals. Since it can extend in length only, the border may be said to stretch rather than to cover.

In light of the definition, explain why each of the patterns on the opposite page cannot be considered borders.

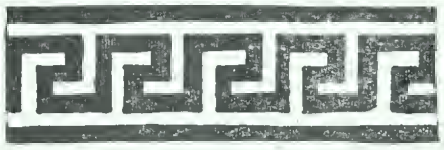
Historic border pattern



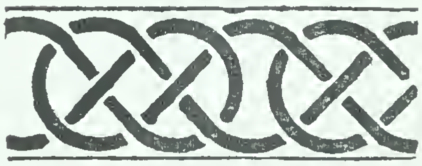
South Seas Checquer



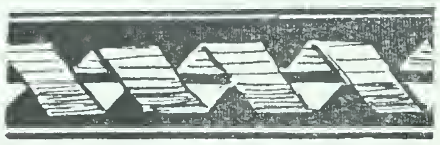
Egyptian Lotus



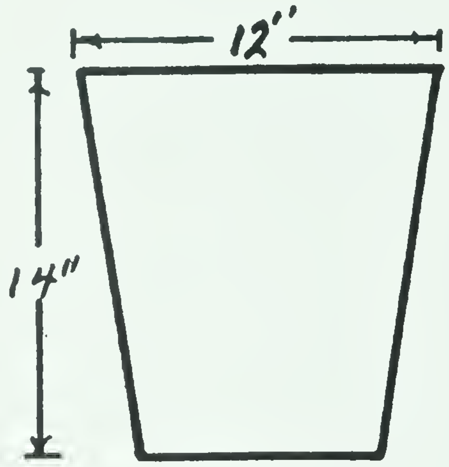
Greek Fret Celtic



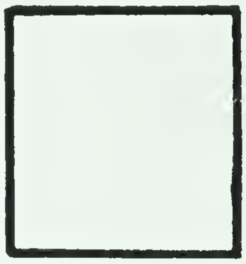
Interlacement



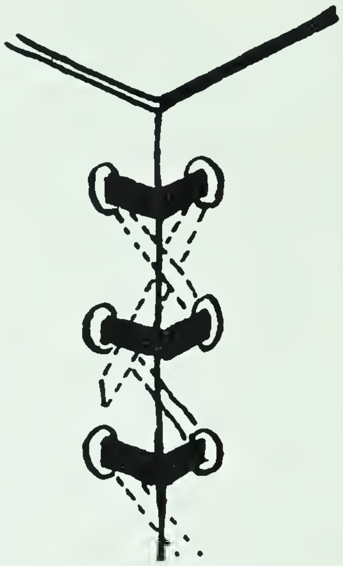
Italian Ribbon



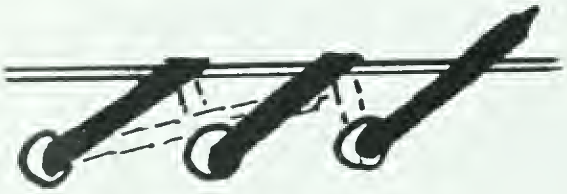
Side



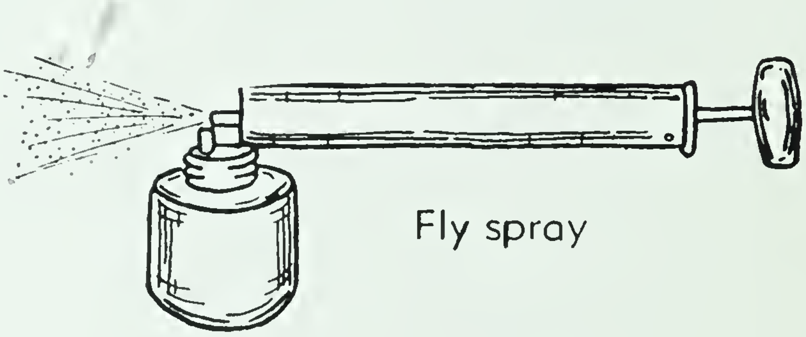
Base



Lacing the corners.

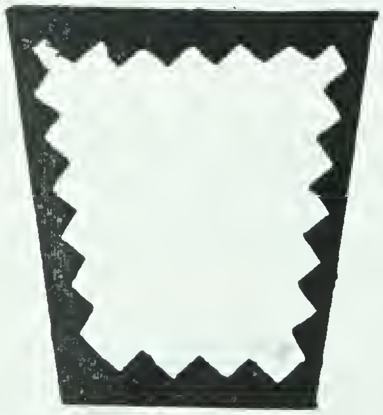


Lacing the edge.

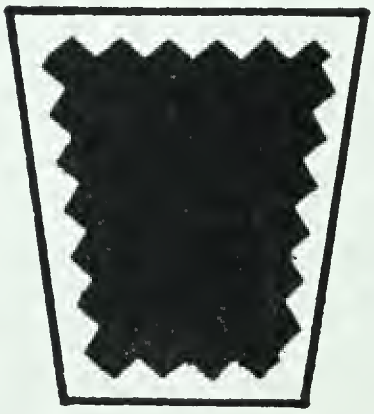


Fly spray

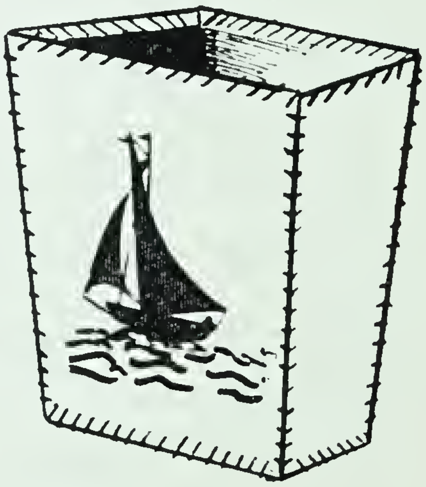
Stencil pattern.



Template pattern.



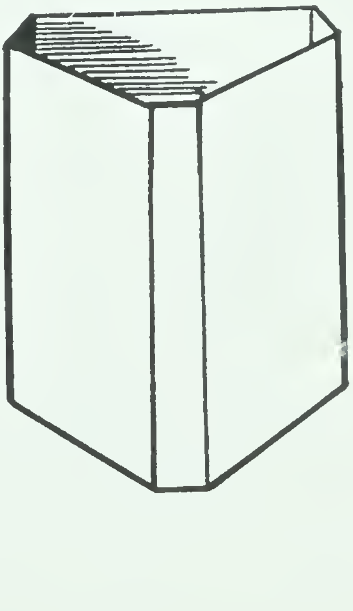
Completed basket

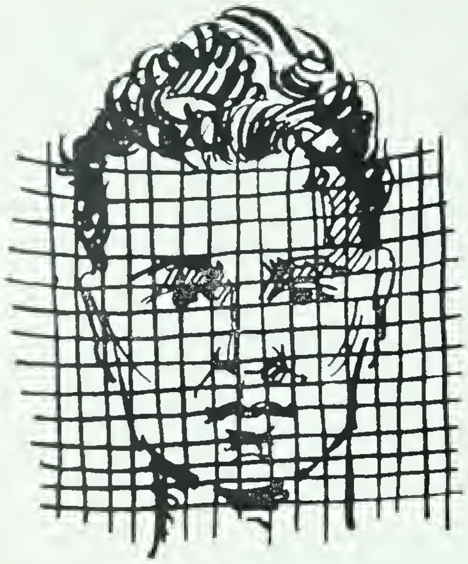


WASTEPAPER BASKET

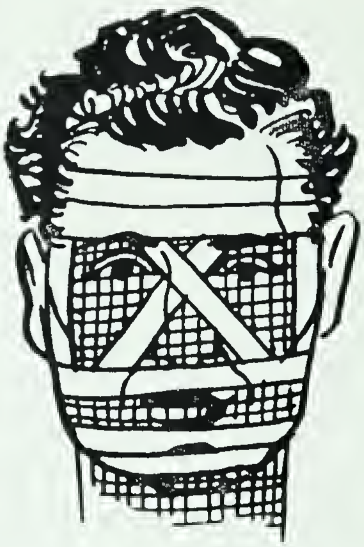
Materials required—4 pieces cardboard (see diagram for dimensions) for sides, 1 piece 8″ x 8″ for the base, (these may be secured from a cardboard carton), knife or heavy shears, scissors, steel square, paper punch, raffia, wool or bias tape, fly spray, powdered tempera or casein paints, thin cardboard, beeswax, gummed kraft paper, pins, drawing board.

1. When the cardboard has been cut test the accuracy of the corners with the steel square. On two sides and one end locate the holes for punching, 1/4″ from the edge and 1/2″ apart. Use this piece as a pattern to locate the points at which the holes are to be punched in the other three pieces. Punch corresponding holes in base.
2. Use kraft paper to cover any open edges of the sides or base. Cut pieces to the required size; fold in half along the long side; moisten one half without neglecting the edges. Place the edge of the cardboard along the fold of the moistened gummed paper, and press the two together. Moisten the free half of the kraft paper, turn it over the edge and press it firmly against the other surface. Repeat for other sides and base.
3. Plan your colour scheme. There are three different places where the colour is to be applied—the sides, the base, and the binding material. Different shades or tints of the one hue (obtained by adding black or white to the standard hue), or the use of contrasting hues will give a pleasing effect.
4. Mix the casein paint as directed on the package, and cover the inner and outer surfaces of the sides and base. Allow to dry.
5. Mix the powdered tempera and water before putting the mixture into the container of the spray. Too much water will weaken the strength of the hue. It will be more economical to add water to the tempera than to add the tempera to the water.
6. Draw the design to be used as a template on thin cardboard. In order to get good results it must have an interesting and well-defined outline. To prevent ragged edges on the template use sharp blades (scissors or knife) and long cutting strokes. Rub beeswax over the surface of the template.
7. Pin side to be decorated to the drawing board; pin template into position on the side. Spray the colour over the template. See diagram.
8. Spraying too closely, too long, or too liberally will saturate the cardboard with the result that upon further application the spray will collect into drops and run down the surface of the side.
9. Take your time in removing the template from a freshly sprayed surface. If possible, remove it by means of the pins holding it in place. Lift the template *away* from the paper; do not slide it, however slightly, along the surface—the sliding will disturb the character of the line. Allow to dry.
10. Always wipe a template on both sides before using again.
11. See diagram for method of lacing sides and base together.
12. The triangular waste-paper basket was designed to fit into corners so that it might be seen, used, yet still be out of the way.

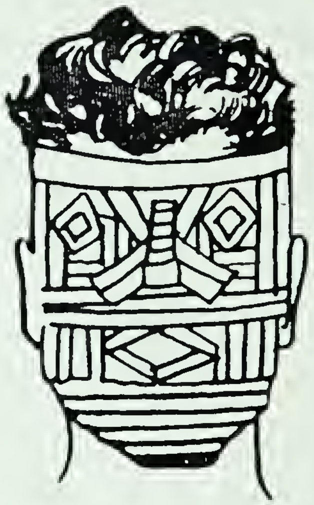




Cover face with cheesecloth.

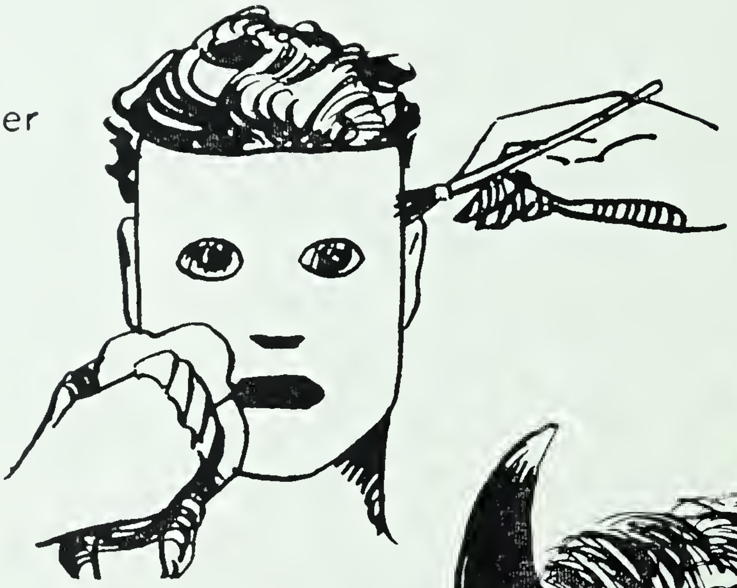


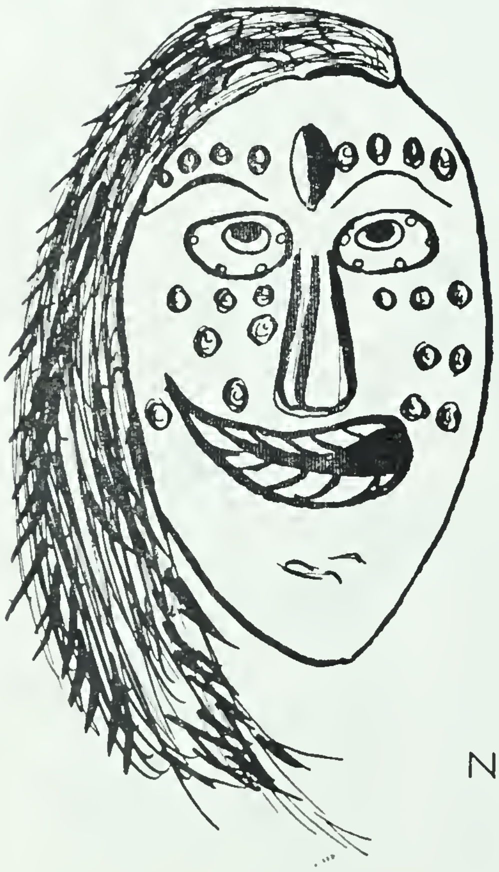
Basic strips of kraft paper.



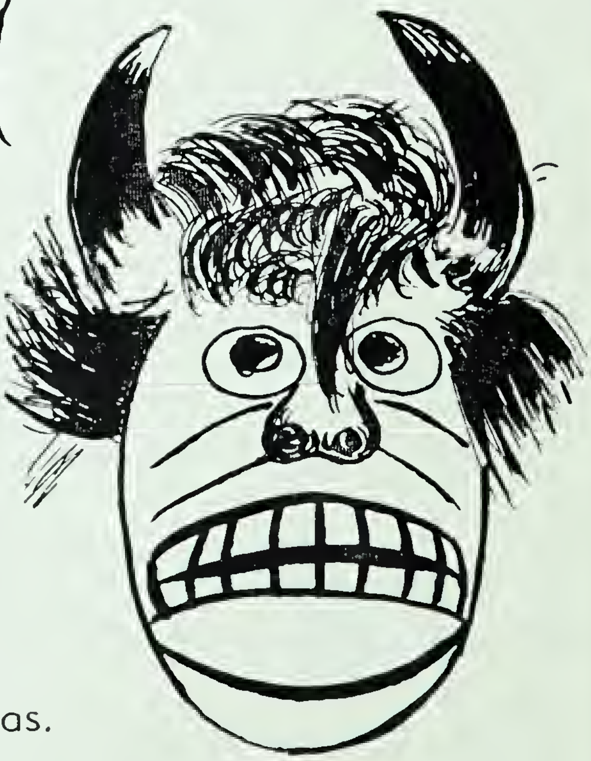
Face completely covered with kraft paper

Lightly sand the dry paper towel surface. Paint.





Iroquois masks



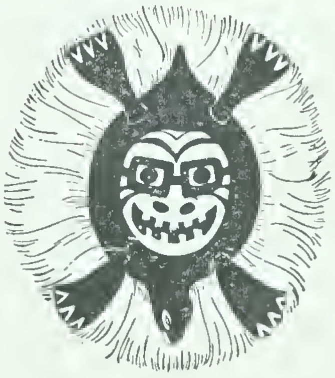
New Orleans Mardi Gras.

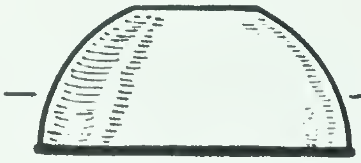
Mask Making

Materials needed—a piece of cheesecloth 12″ x 20″, gummed kraft paper cut in various lengths and widths, paper towels, tempera paints, brushes, shellac.

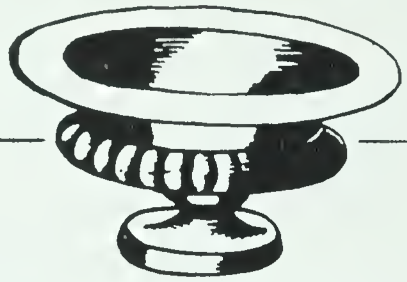
1. Mask making is a very old and widespread art. Read the note in the Encyclopaedia on masks.
2. Masks are made by pupils working in pairs. Choose the partner and alternate in making the mask.
3. Cover the face of the model with cheesecloth making sure that it fully covers the hair line of the forehead, the under part of the chin, and is tied securely at the back of the top of the head.
4. Moisten the gummed side of a large strip of the kraft paper. Secure the strip to the back of the head and stretch it across one temple, across the forehead, across the other temple, and around the back of the head so that it finally overlaps and sticks to the starting end of the strip.
5. It is important to have the model cooperate in this work by continually pressing the gummed strips in close to the face.
6. Next a long piece is moistened and stretched from the strip covering the temple, under the chin to the next temple.
7. A long-narrow strip is then placed above the upper lip and attached to the strip running from temple to temple. A similar strip is placed below the lower lip and attached to the same strip. See diagram.

8. From the strip below the chin to the lower lip strip, short pieces are used to drape the chin. See diagram.
9. Use thin strips across the bridge of the nose from the forehead to the upper lip strip.
10. Completely cover the forehead by the use of overlapping strips.
11. Cover the cheek area by using short pieces from nose to ear and from ear to chin.
12. Use short horizontal pieces to cover the nose leaving the nostrils open.
13. Cover all empty portions.
14. Put a second layer over the first to strengthen the mask.
15. Remove mask to allow model to freshen the face by washing. The model may now make a mask on the face of his partner.
16. Tear paper towels into strips of irregular size, moisten then and apply paste. Use these strips to cover the mask. If skilfully applied, the towelling should cover all the irregularities in the surface of the mask. Allow to dry.
17. Use fine sandpaper and rub gently to remove any remaining surface irregularities.
18. Use tempera paints to decorate the surface. Exaggerations in the colour of the face or its parts, changes in the direction of the mouth or eyes, application of geometric patterns to the chin, cheeks, or nose will result in a decorative scheme that is not unlike that found among the Iroquois or Maori masks; or the addition of hair, eyebrows, moustache, etc. by the use of wool, shavings, or cotton batting will produce humourous effects.

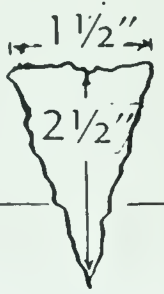




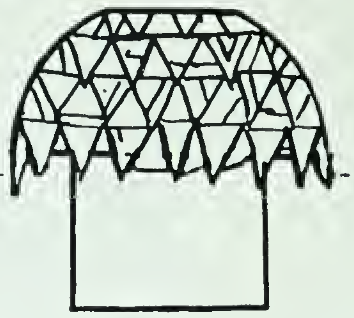
Suitable bowl
—no undercuts



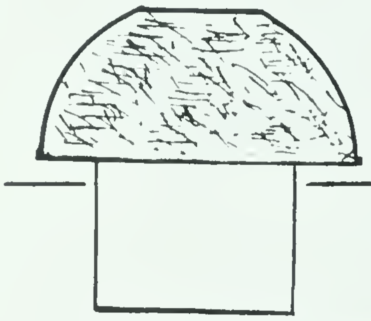
Unsuitable bowl
—note undercuts



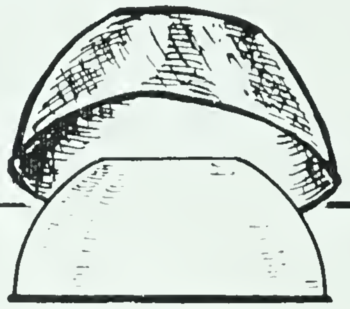
Paper triangle



Pasting the triangles
into position.

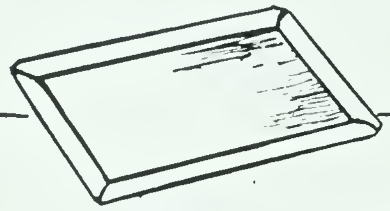


Bowl covered with
seven to ten layers·
projecting ends cut off.

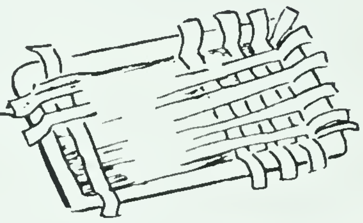


Removing the paper
shell from the bowl.

Decorated bowl



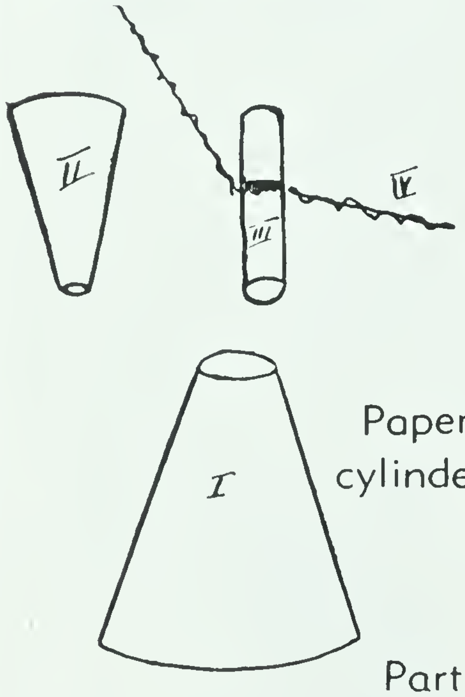
Tray



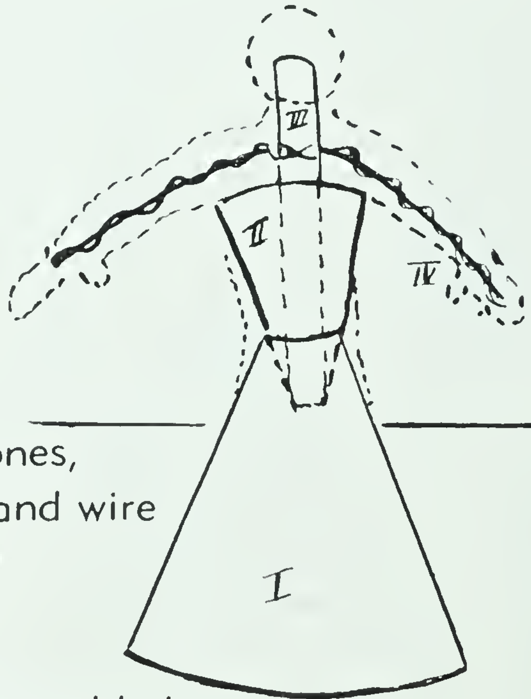
Applying the paper strips.

Completed tray

Papier maché doll



Paper cones,
cylinder, and wire



Parts assembled
for maché foundation.

Maché doll,
painted and clothed.

PAPIER MACHE BOWL

Materials required—bowl having no undercuts—see diagram—paper triangles of ordinary newspaper and comics, previously moistened, torn, not cut to size, waxed paper triangles, paste, brushes, scissors, sandpaper, tempera colours, shellac, stand (a large tin can or pint sealer is ideal for this work), vaseline.

1. Place the inverted bowl over the stand.
2. Cover the bowl liberally with vaseline so that the papier maché bowl may be slipped off more easily later.
3. From the centre of the underside of the bowl, radiate the waxed paper triangles so that they completely cover the surface of the bowl and extend beyond its lower edge. When applying the triangles to the bowl, see that the paper is smoothed out to eliminate wrinkles, that the edges slightly overlap, and that they extend beyond the lower edge.
4. With cupped hands firmly press the layer of waxed paper to the sides of the bowl. Repeat this operation for each additional layer.
5. Cover each triangle of the first layer of newspaper generously with paste and cover the bowl as with the waxed triangles. The layer does not have to be dry before the next layer is applied. Use a different kind of paper for alternate layers. Seven to ten layers will make a firm bowl. Allow to dry.
6. Cut off the excess paper extending beyond the rim of the bowl.
7. Sandpaper the outside of the bowl.
8. Carefully pry the papier maché shell from the bowl by using a pliable flat stick or nail file: knives have a tendency to cut the maché bowls.
9. Remove the wax paper layer. Sandpaper the inner surface until smooth.
10. Plan the colour scheme and pattern for the surface.
11. Cover the bowl completely with a background colour. Allow to dry.
12. Apply the border or unit design. Allow to dry.
13. Shellac both surfaces. Allow to dry.
14. Clean paste and tempera brushes in water; the shellac brush in alcohol.

PAPIER MACHE TRAY

Use long wide pieces of paper instead of the triangular pieces. A stand is unnecessary. Either the outside or inside of the metal tray may be used to get the shape. More layers of paper are required to make the tray strong enough to serve its purpose.

PAPER MACHÉ FIGURES

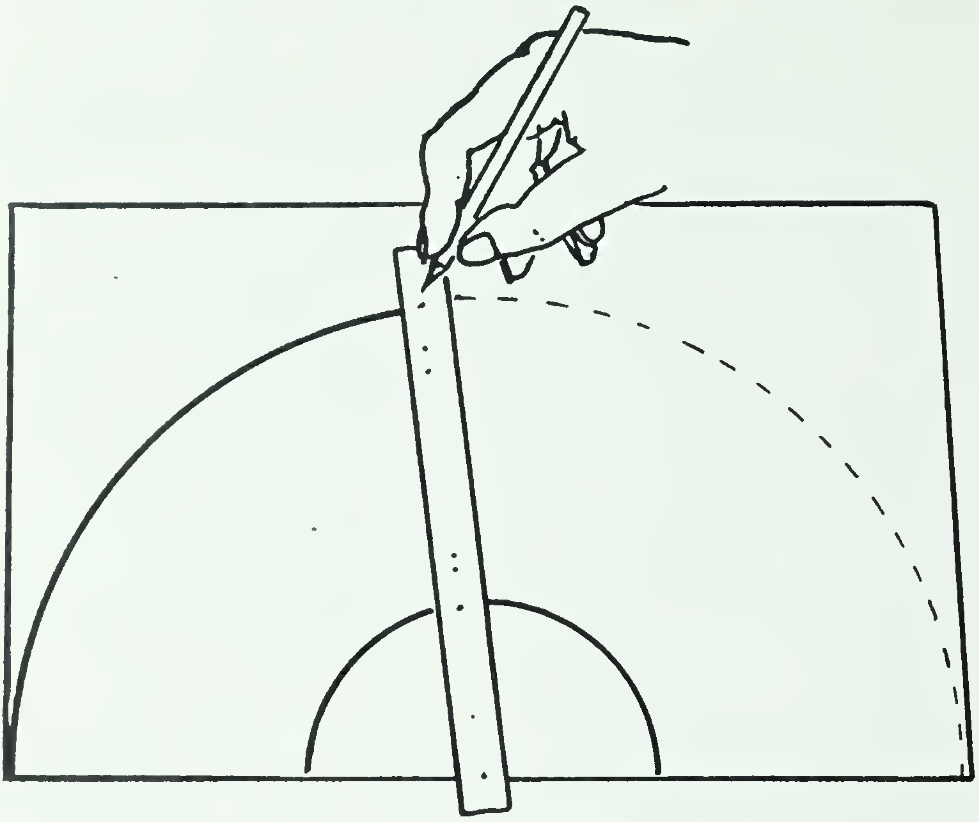
1. Tear a single piece of newspaper into very small pieces; soak in hot water overnight.
2. Add a mixture of paste (recipe given below) and sawdust until the whole mass has the consistency of putty.
3. Assemble paper cones, cylinder, and wire as shown in the diagram.
4. Use the paper pulp to model head, shoulders and arms for the figure. Allow to dry.
5. Sandpaper pulp to a smooth finish. Use tempera or water colours to apply features.

This foundation may be used for a class activity, *The United Nations in Costume.*

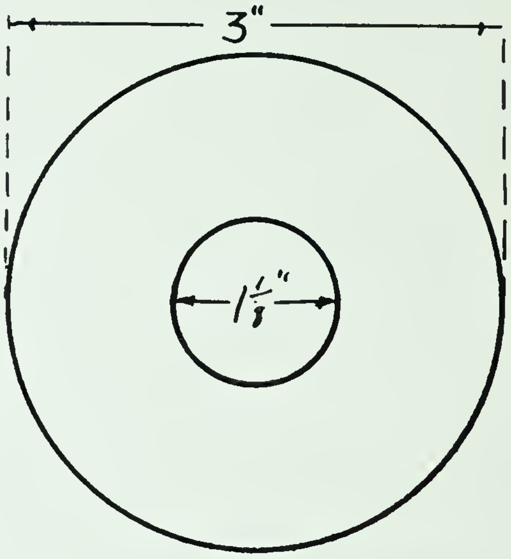
RECIPE FOR LIBRARY PASTE

4 parts fine starch
½ part glucose
21 parts of water
1/16 part carbolic
1/16 part formaldehyde
few drops of the essence of lavender

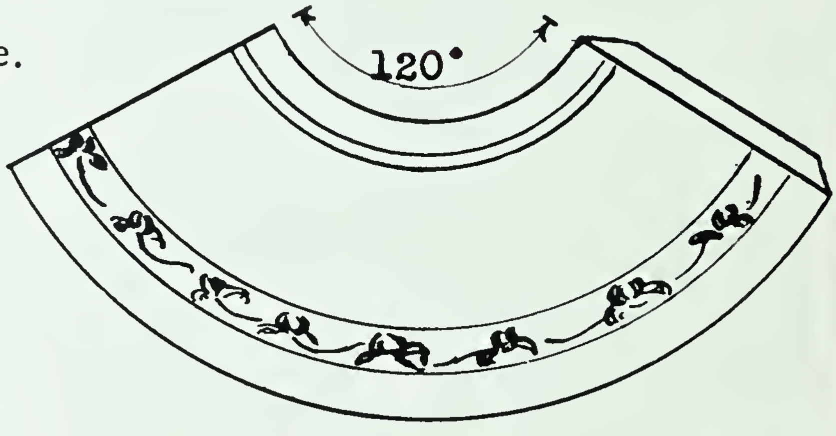
1. Mix starch and glucose in warm, not hot, water.
2. Stirring constantly, bring the mixture to a boil.
3. Add carbolic and formaldehyde as a preservative.
4. Add lavender.
5. Remove from heat when the mixture has the consistency of thick cream.
6. Bottle when hot.



Describing the semi-circle.

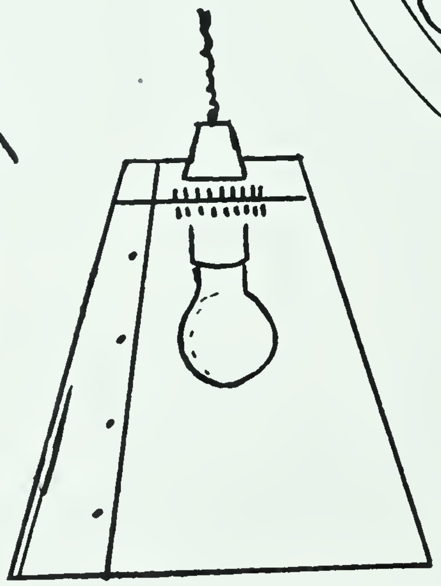


Cardboard support.

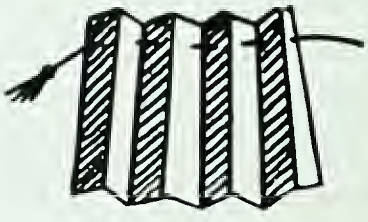


Decorated shade

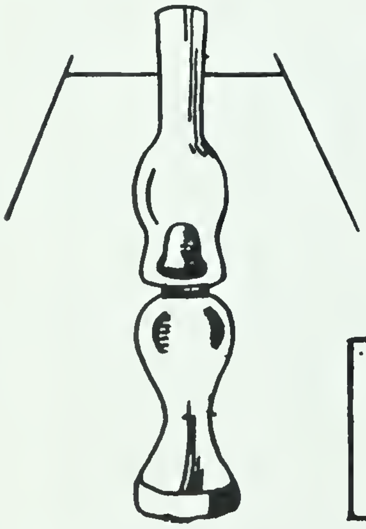
Table lamp



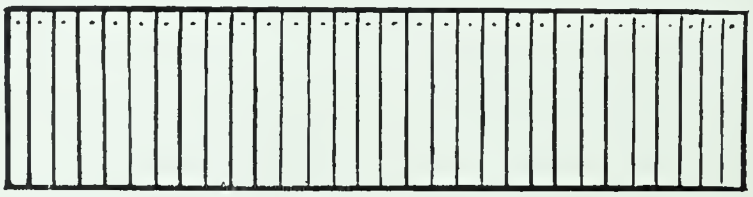
Shade decorated and assembled



Accordion fold.



Oil lamp



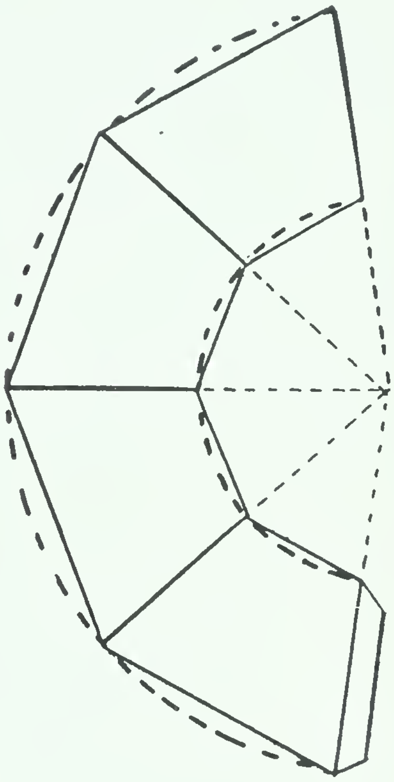
Twice the circumference of the shade.

Completed shade.

LAMPSHADE

Materials required—ticket board, pencil, scissors, paints, parchmentizing fluid, shellac, brushes, staples or paper pins, india ink.

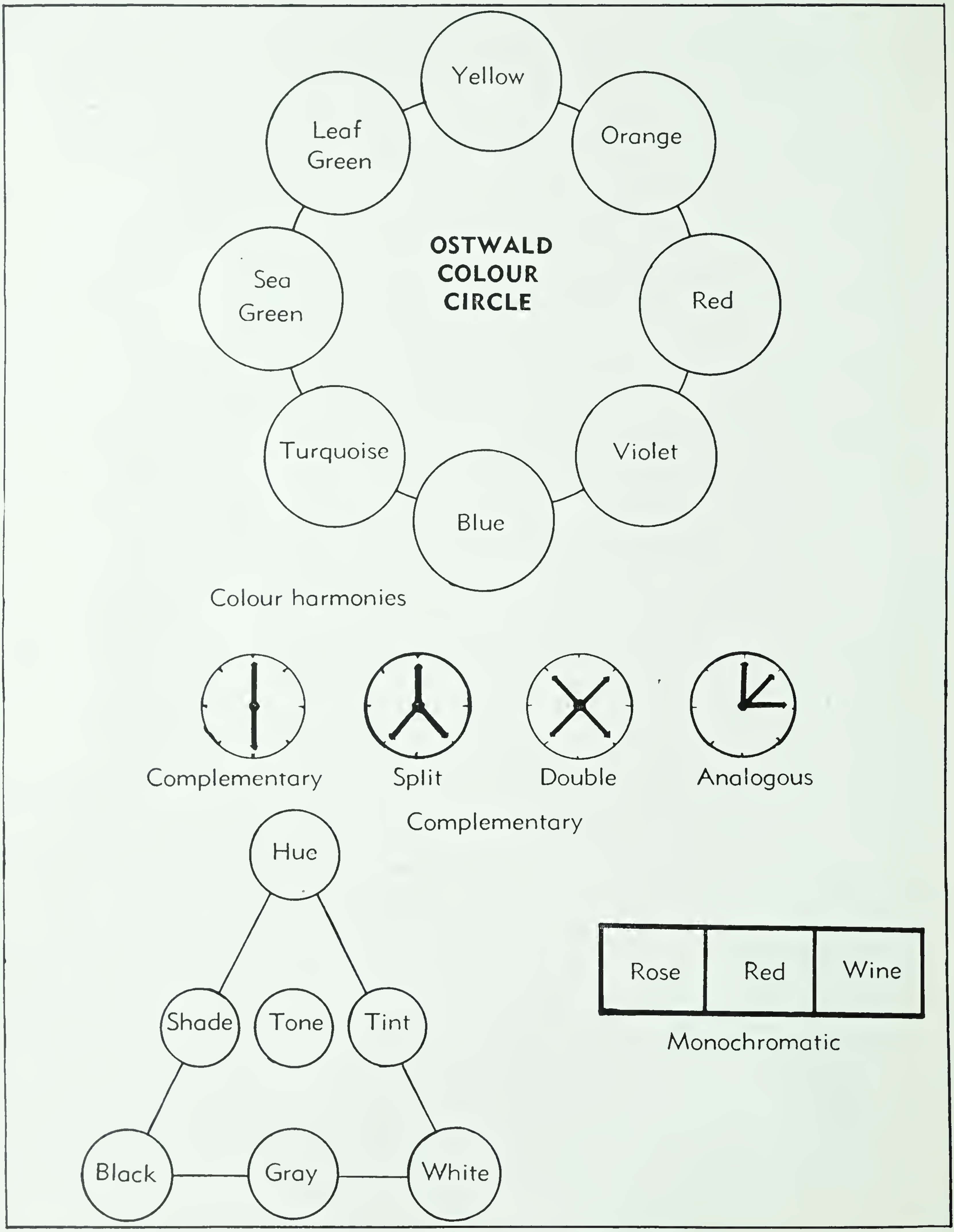
1. Find the centre of the long side of the ticket board and using a paper compass, describe circles as shown in diagram. Mark the diameter of the innermost semicircle 3½″ and make the inner angle equal 120°.
2. Cut out the lampshade. Remember to leave a flap for the attachment of the two ends.
3. Cut out a "do-nut" from cardboard at least 1 1/16″ thick. The diameter of the inner circle must be 1⅛″.
4. Trace previously made design to paper. The most frequent mistake is to have the design traced upside down; be careful to avoid this.
5. Rub parchmentizing solution over the design. Allow to dry.
6. To make parchmentizing solution, prepare a quantity of fine paraffin shavings and dissolve by mixing thoroughly in turpentine (about 1 square inch paraffin to about 3 ounces turpentine). Add an amount of boiled linseed oil equal to the mixture, and mix together thoroughly. Saturate a soft, clean cloth with the solution and rub with a circular motion over both sides of the lamp shade. Allow to dry.
7. Bend sheet so that the free end is in line with the inner edge of the flap. Join both ends by use of staples or paper pins. To use completed lamp shade on a hanging fixture, remove the bulb, put up lamp shade, insert socket through cardboard do-nut, allow the shade to come over the support as shown in diagram.
8. For standing lamp use a "harp" and make the inner diameter of the do-nut ½″. Remember to punch several holes in the donut to allow the heated air to escape.
9. For oil lamp use a metal do-nut cut from sheet iron whose inner diameter is sufficiently large to permit it to be slipped on and off the glass chimney. Have additional holes in do-nut to allow heated air to escape.



Plan for a rectangular shade

ENRICHMENT ACTIVITIES

1. Consult the Encyclopaedia to find out how paper is made.
2. Collect examples of manilla, crèpe, newsprint, ticket board, bristol board, onion skin, and tracing paper.
3. Try to find out how Masonite or Insulite (trade names) is made.
4. Explain what is meant by bond paper; a water mark.
5. To what uses, other than writing or printing, has paper been put?
6. When and where have rags, papyrus, rice, straw, and wood been used in the production of paper?
7. Name the trees principally used to make paper.
8. Consult *Bartlett's Quotations* for literary references to paper.


OSTWALD
COLOUR
CIRCLE
Yellow
Orange
Red
Violet
Blue
Turquoise
Sea Green
Leaf Green
Colour harmonies
Complementary
Split
Double
Analogous
Complementary
Hue
Shade
Tone
Tint
Black
Gray
White
Rose
Red
Wine
Monochromatic

COLOURCRAFT

Colour abounds everywhere! It is surprising once you stop to look about you the great variety of coloured things that play an important role in your everyday living.

Colour is always associated with things—too often people have thought about it in terms of paint and brushes. There is colour in the skies, leaves, sweaters, wallpaper, vegetables, feathers, ornaments, hair, skin, eyes, etc. Devote a few pages of your scrap book to pictures in which colour is a prominent feature.

In looking forward to the time when you will be asked to work with colour, see what information you can store up as to how Nature uses colour in the landscape at the various seasons of the year; the colours that are combined in one plant; the colours worn by persons you consider well-dressed; the colours used in attractive fabrics and wallpapers; and the colours used by painter-artists to convey the impression of cold, warmth, sadness, joy, excitement, quietness, etc. List these facts for future reference.

Before the invention of coal tar dyes in 1856, Nature supplied man with materials from which it was possible to get a complete range of colour, although not quite as varied as is used to-day. Then pigments were made from coloured things,—the soils supplied browns, reds, yellows, grays; the chalk deposits, white; black was obtained from charcoal; blue, from cobalt or iris flower roots; carmine, from insects, and red from the inner bark of the birch tree; purple from dandelion roots; green from elder leaves; and orange from the oxides of copper. In the first volume of the *Literary and Historical Society of Quebec*—1829—there are "Memoranda respecting colouring materials produced in Canada". The following are excerpts taken from this article.

> "Many of the spontaneous vegetable productions of this country are capable of affording brilliant and durable colours to the painter and dyer."
>
> "The Indians use a red dye to tint porcupine quills and elk hairs 'called Tsavooyan.
>
> "A very rich and durable dye for dyeing, and a lake (liquid) of the same colour for painting, are afforded by the outer husk of the butternut. . . .

Dye Making from Natural Materials

> The colour is copiously extracted by infusion in warm water and may be precipitated by . . . alum.'

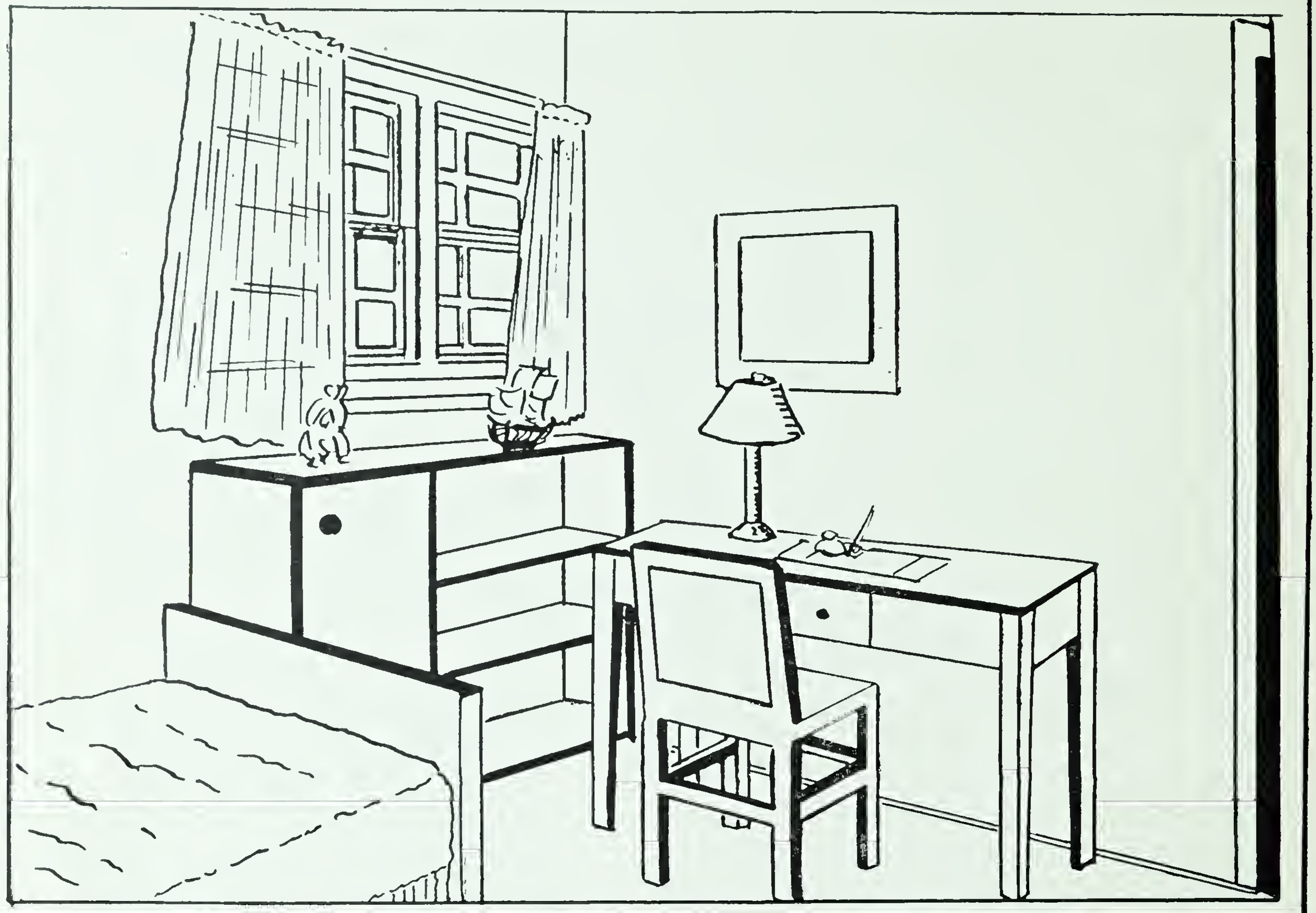
For students who enjoy experimenting, every community provides readily accessible material. For example, there are roots, bark of trees, fruits, berries, leaves, flowers, and minerals which may serve to combine an interest in elementary Chemistry, Nature Study, and Art, or in creating colour materials—dyes—to be used as paints on paper, the pigment for finger-painting paste, for stains on wood, in addition to tie-dyeing on textiles. The fact is soon learned that the colour of the material used prior to the preparation of the dye is no indication of the colour of the resulting dye.

Dye Preparation

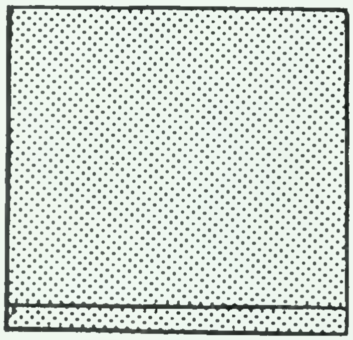
1. Break, crush, chop, or grind up the natural material.
2. In a granite or agate ware kettle, soak this material for at least twelve hours in soft water (filtered rain water, or tap water to which vinegar has been added).
3. After soaking, bring liquid to a slow boil to further the extraction of all colour.
4. Strain the liquid through a double thickness of cheesecloth to remove any solid particles. The use of young plants, or the use of too much water, is likely to affect the strength of the resulting dye which is now ready for painting, staining, or dyeing wool.

The following list indicates examples of dye sources and the colours obtained.

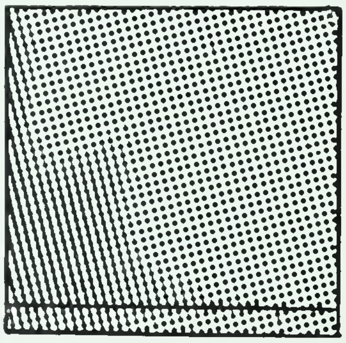
*Apple bark	Yellow
Onions (flesh)	Yellow
Sunflowers	Yellow
Onions (skins)	Yellow-Orange
Bloodroot	Orange-Tan
Tea leaves	Rose-Tan
Coffee grounds	Light-Tan
Oak bark—Beets	Brown
Walnut shells	Khaki
Black cherries	Mauve
Spinach leaves	Green
Blueberries	Blue—Blue-Gray



Light walls make
a room seem larger.

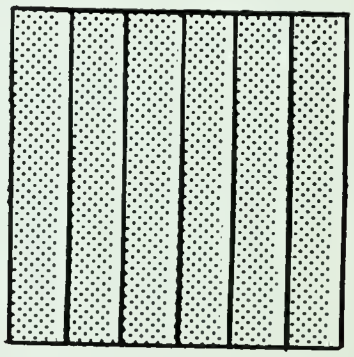


stitched back



Dark walls make
a room seem smaller.

Horizontal stripes seem
to lower the ceiling height.



Vertical stripes make
the ceiling appear higher.

From drug store:	
Manganese dioxide	Gray-Black
Potassium permanganate	Brown
Ferrous sulphate	Light-Orange
Cochineal vinegar	Mauve
Cochineal liquid	Pink
From rusty nails	Brown
From indelible pencils	Intense Blue, Purple
From dyed crepe papers	Strong Colours

Other colours have been obtained from mixing two or three dyes in varying proportions.

Undoubtedly there will be some colours, shades, or tints that you will want to use that are not to be found in the water colour box, or among the dyes, tempera paints, chalks, or crayons at hand. It is, therefore, wise to explore the possibilities of colour mixing. In your experiments try to answer the following questions to your own satisfaction:

1. What happens when (a) water, (b) white, (c) black, is added to any given colour?
2. What difference is there in the result when first one amount of black is added to a colour, and then twice the amount of black is added to the same colour?
3. You have exhausted your supply of green. What colours can you mix to give the same effect?
4. What mixtures will produce brown? Peach? Steel gray?
5. How is the brightness of a circle of red affected when it is surrounded by a white, a black, a dark green, or a light red background?

Colour in the Home

What is it that you dislike most about your own room? When that question was given to a large number of students, ages 13 to 16, the following answers were supplied:

1. Too small.
2. Sloping ceiling.
3. Too dull.
4. Unattractive furniture.
5. Impractical.

Most of these conditions can be remedied by a proper use of colour.

A small room can be made to appear larger by choosing:

1. Light-coloured wallpaper and woodwork.
2. A white ceiling.
3. Curtains that are the same colour as the walls.
4. Furniture whose colour harmonizes with the walls.
5. A carpet or rug that stretches from wall to wall, and just enough furniture to serve your needs.

If the ceiling is too low, it can be made to appear higher by using wallpaper with vertical stripes, curtains that come to the floor, and a narrow valance that turns up. If the ceiling is bent, put the head of the bed under a slanting wall to use a wall which prevents anything tall from being placed against it.

It is not difficult to prevent a bedroom from appearing dull, if you take into account the amount of window space and the exposure. Very bright colour should be avoided, as that will conflict with the basic idea of the room—quiet and rest. If the room has a window facing south, soft blues and greens that suggest coolness counteract the brightness and light; rooms with northern exposures which never get enough direct light should be brightened by the use of warm colours—pink, peach, salmon, yellow.

Furniture with a natural finish, or painted in a light colour, helps to give an impression of greater size. At this point it may be noted that the proper arrangement not only gives more room, but will help to make the room more attractive.

Accessories should be in contrasting colours to relieve the monotony. Before setting out to revitalize your room, try to visualize it as a unit. Take one colour, such as yellow, and build up the decoration of the room around this colour. Use various tints, shades and tones related to this colour. Contrast and interest may be introduced by the use of vermilion and black in the small accessories.

Make a tracing of the diagram appearing on the opposite page, enlarge it, and decorate it with coloured pencils, tempera paints, or water colours, to suit your taste.

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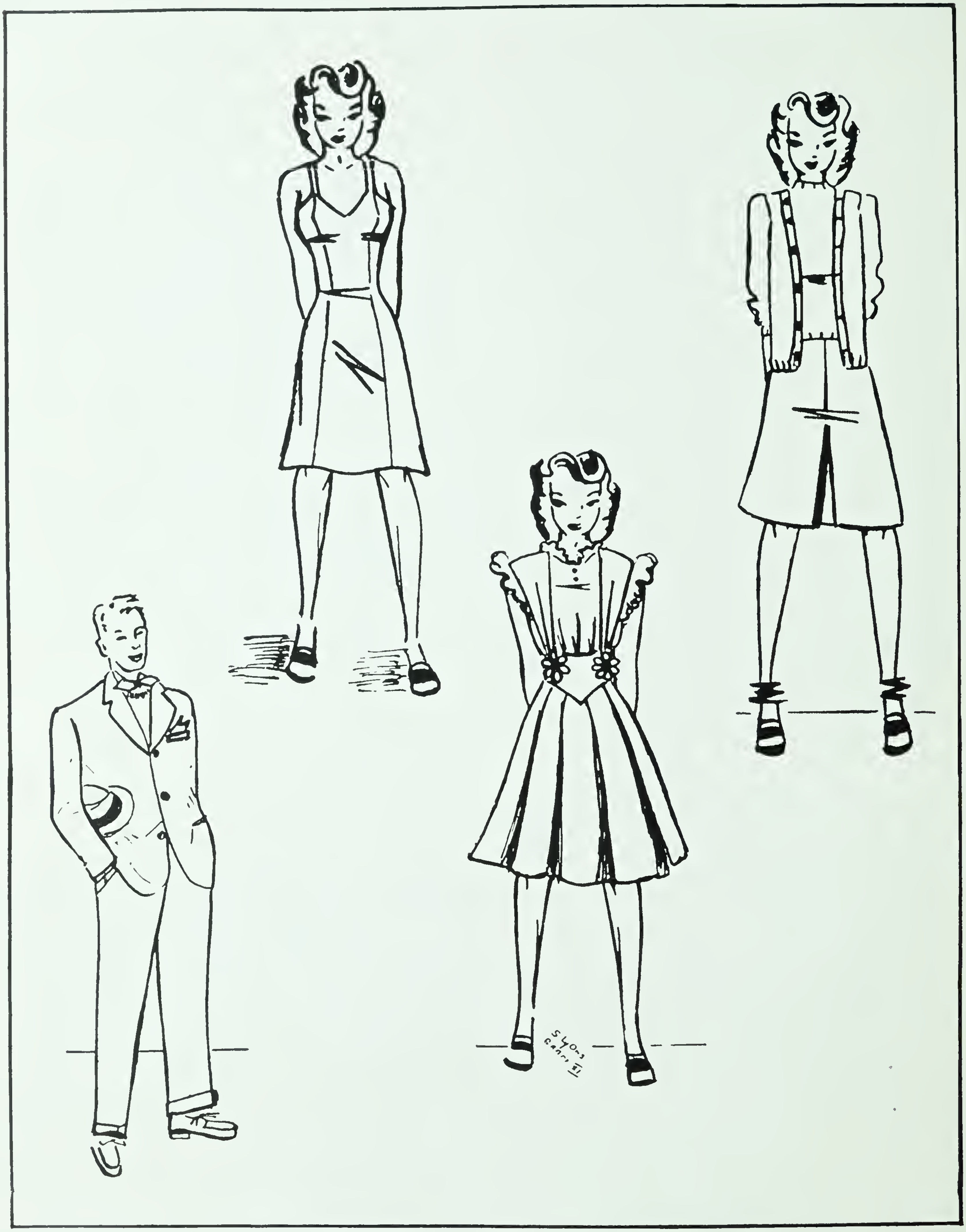
*The above list is taken from one compiled by Colleen Kindree, a student at Owen Sound Collegiate, who obtained 37 dyes from materials in and around Owen Sound.



Colour and Costume

Art can be used to improve your appearance. All students who want to appear as attractive as they possibly can should learn how to use colour to bring out their best characteristics.

The colour of your clothes should be determined by the colour of your skin, hair, and eyes, not by what looks well on someone else. If you have black hair, fair skin and dark eyes, you can wear shades of red, tones of blue and green, eggshell, beige, and browns. Blondes with fair skin and blue eyes can wear most colours, with the exception of pure yellow or orange. Persons with red hair should avoid vivid reds and purples: the flattering colours for this type are dark browns, dark greens, and black.

Other things that should be taken into consideration when planning your costume are (a) use to which the clothes are likely to be put; (b) material out of which it will be made; and (c) the style. It does not take very much imagination to realize why a shimmering taffeta or a sheer voile would be unsuitable for everyday school wear, or that high-heeled shoes, no matter how smart they appear, are incorrect attire for a hike through the woods.

Style is determined by many factors. Can you explain the degree to which each of the following has influenced present-day costume: Hollywood, the war, college life, season of the year, and geographical location? It should be constantly kept in mind that the pleasing effects in costume are those which are achieved by harmony, rather than by exaggeration. Remember that the next time you are tempted to buy the red dress that made Mary Smith look glamorous, or the multi-coloured tie that gave John Brown that well-dressed appearance. Those may not be your colours! Choose the ones that are suitable for you, and not only will your appearance be improved but your general outlook on life will be affected.

Trace the figures illustrated on the opposite page and design costumes suitable for school, sports, church, and parties. Use water colours, tempera paints, or coloured pencils to apply colour to the costumes.

On the following pages outlines of the costumes worn in England from the time of Elizabeth to Victoria (1600-1880) are shown. Bring this up to date by finding illustrations or pictures (the family album is an excellent source) that would show the characteristic costumes for 1910, 1920, 1930, 1940, and finally 1946.

Questions

1. How could Robinson Crusoe get a full range of colour pigments?
2. Name the warm colours. When and where should cool colours be used in interior decoration?
3. What personal characteristics should be considered in choosing the colour for a costume?

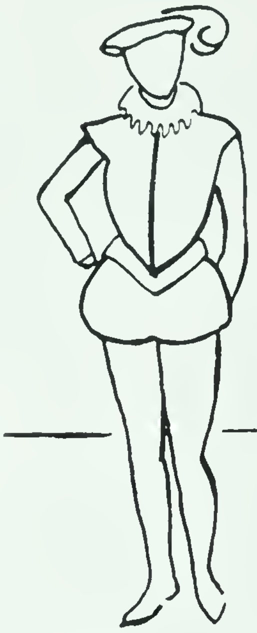
Enrichment Activities

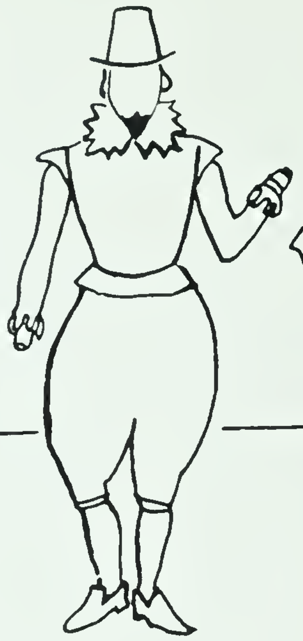
1. Make a list of the colours found in at least five famous paintings.
2. Trace a masterpiece and substitute different colours. Note the changes which have taken place with regard to the planes of the picture.
3. Make a collection of the colour idioms that are found in everyday speech. "Brown as a berry" or "black and blue" may serve as a start for your list.

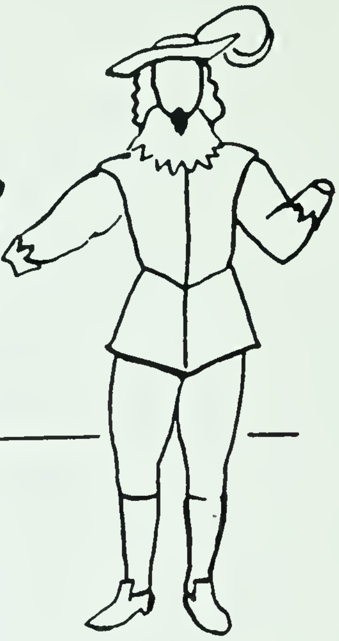
Consult a science text to explain (1) a blue sky, (2) the multi-coloured sky at sundown and (3) how rainbows are formed.

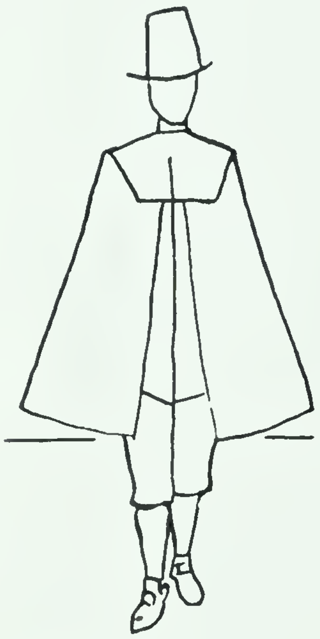
5. Divide the class into two parts, boys and girls, and ask them to list their colour preferences. How could you use that information if you were the buyer for the clothing department of a large store?
6. What contributions did each of the following make to increase our knowledge or enjoyment of colour—Newton, Helmholtz, Da Vinci, Delacroix, and Van Gogh?
7. For a long period of man's history, colour has had a particular significance. Can you explain why red should be such a popular colour on flags? Black is the usual colour for mourning in the Western world: they used white in China. Can you name any other colours to which mankind attaches special significance?

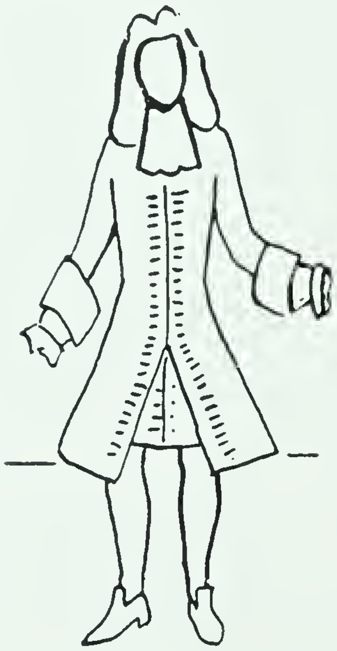
Who told you that one paints with colours? One makes use of colours, but one paints with emotions.
—*Chardin*

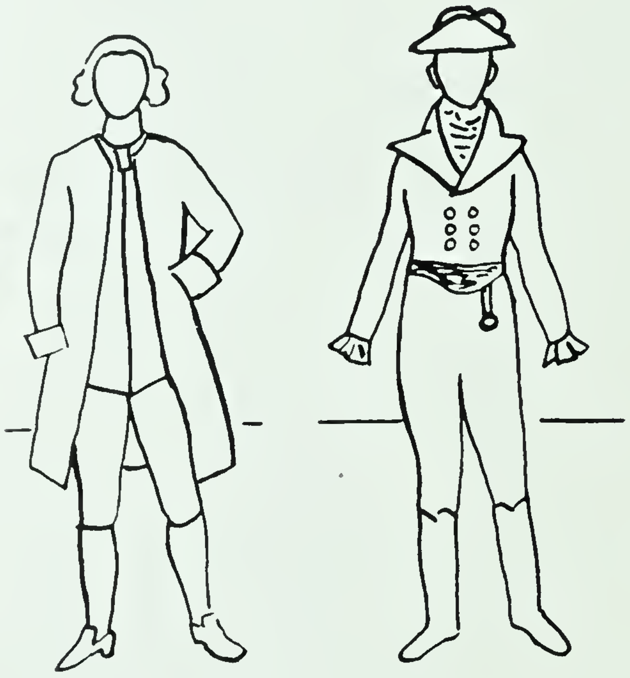

Elizabethan

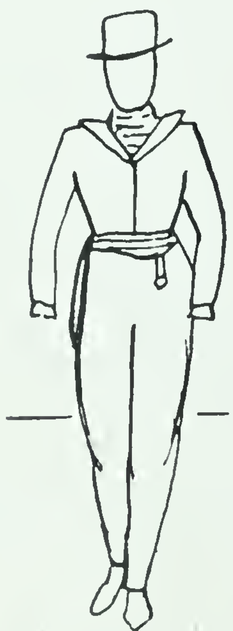

James I


Charles I

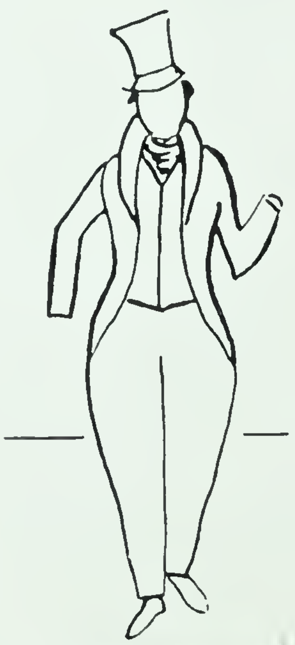

Puritan

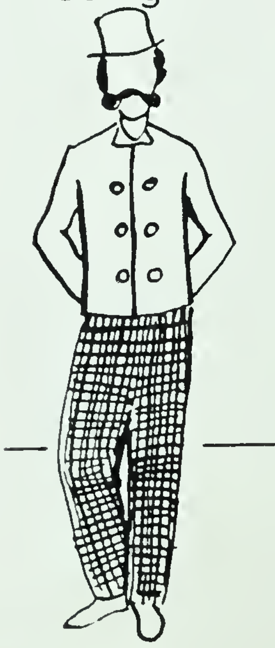

Dutch William

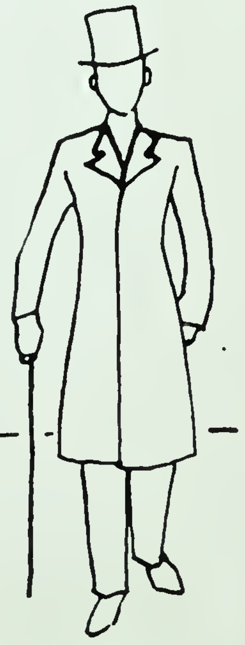

George III (2 for man)

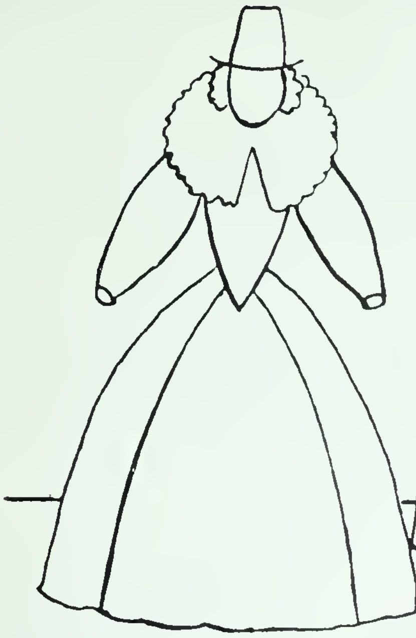

Empire

George IV

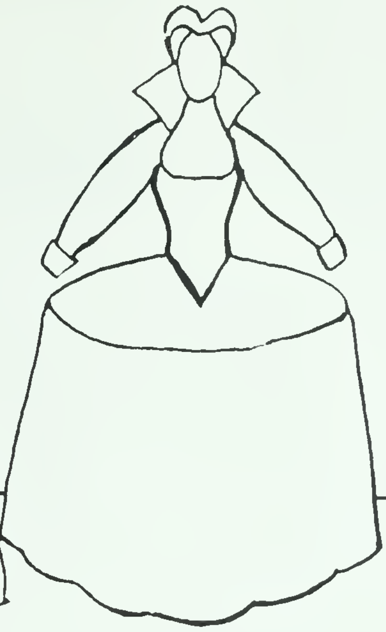

~~George IV~~ Victoria


1850

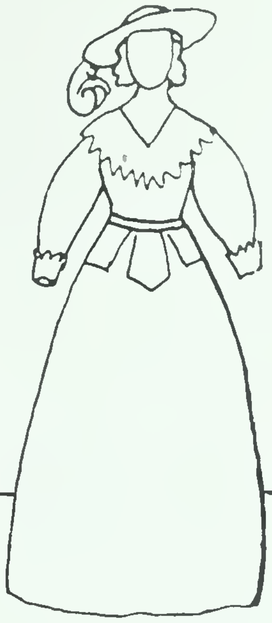

1880



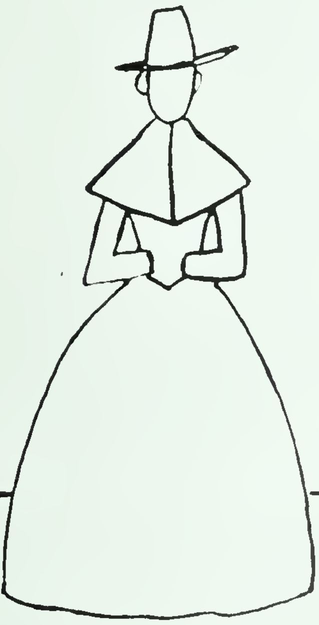
Elizabethan



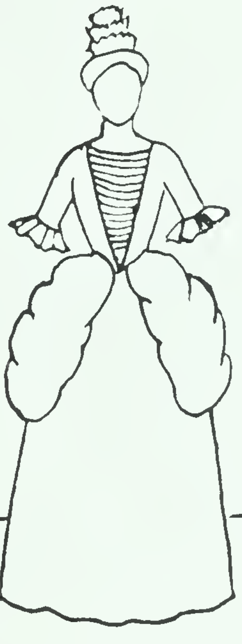
James I



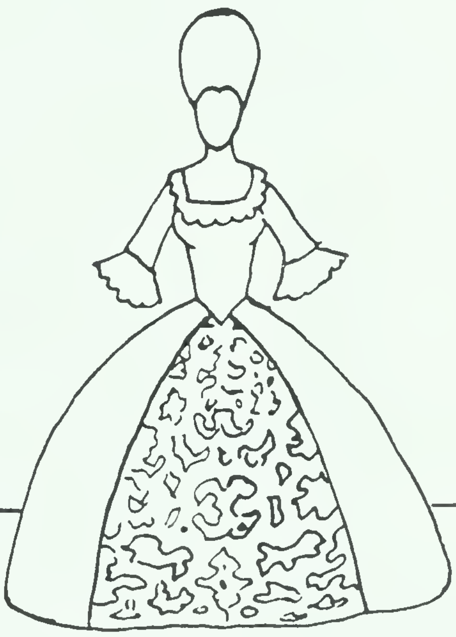
Charles I



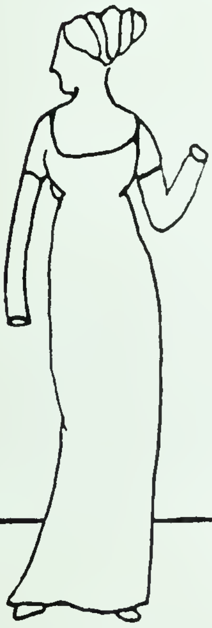
Puritan



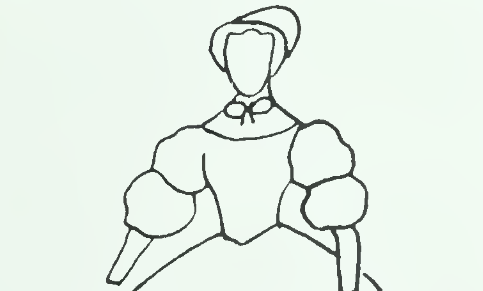
Dutch William



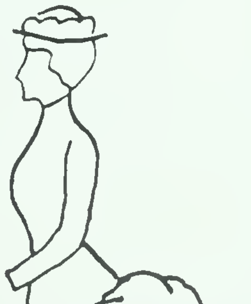
George III



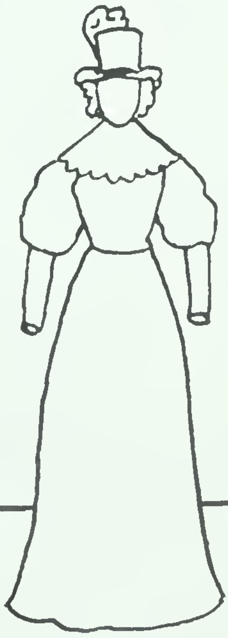
(Empire)
George II



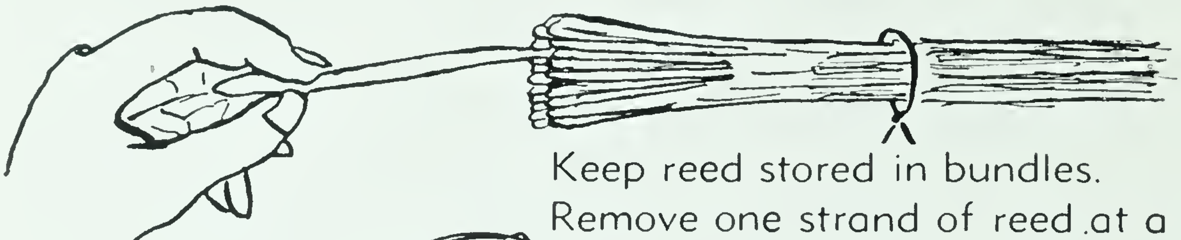
George IV Victoria



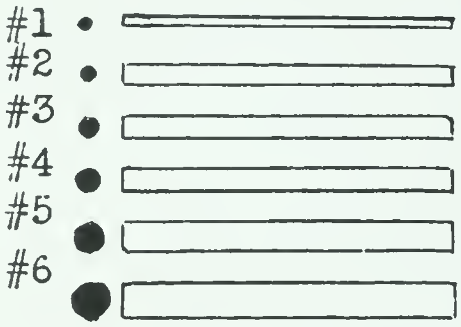
1850



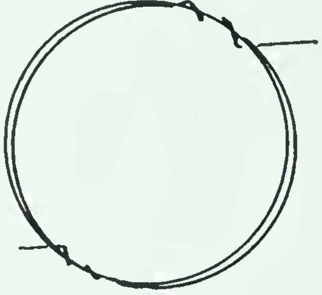
1880



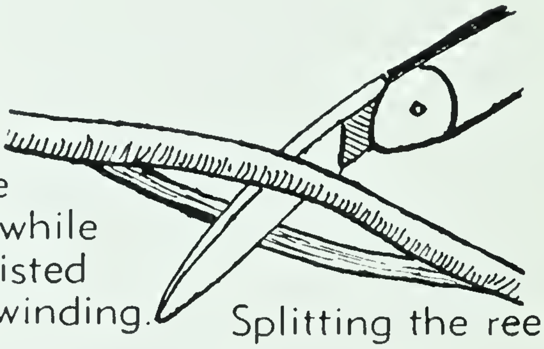
Keep reed stored in bundles.
Remove one strand of reed at a time, by the loop end.



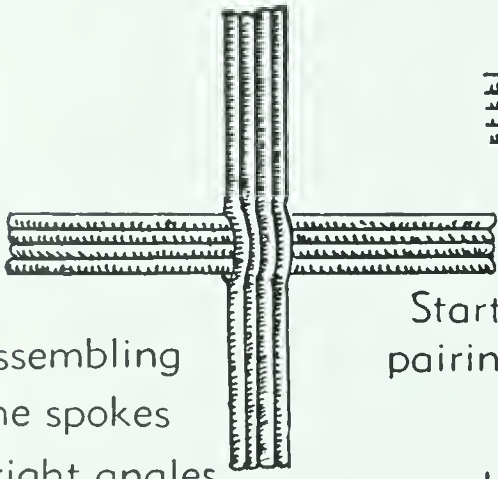
Reed sizes.



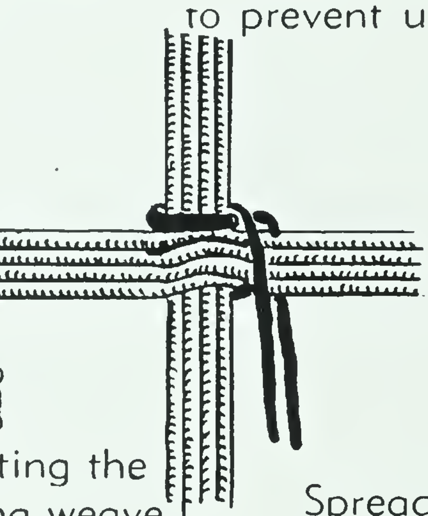
Wind weavers to make them easier to handle while soaking; the ends are twisted to prevent unwinding.



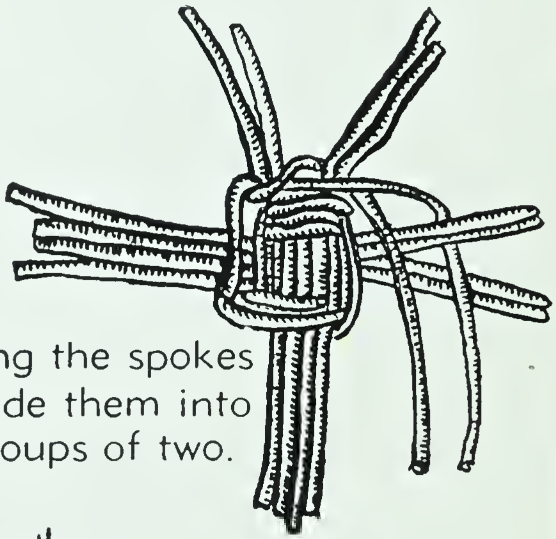
Splitting the reed.



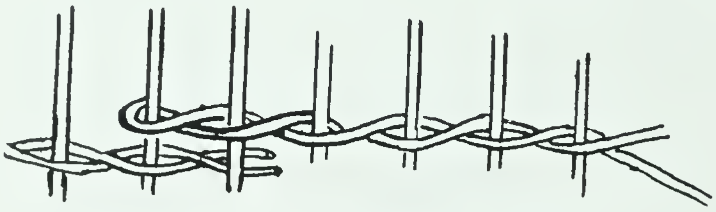
Assembling the spokes at right angles.



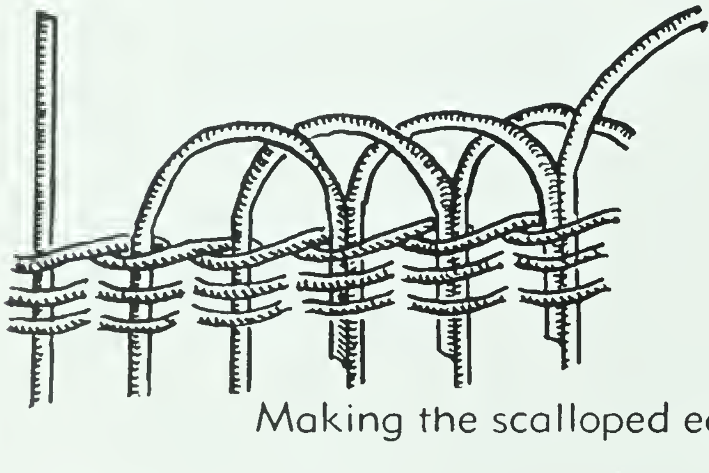
Starting the pairing weave.



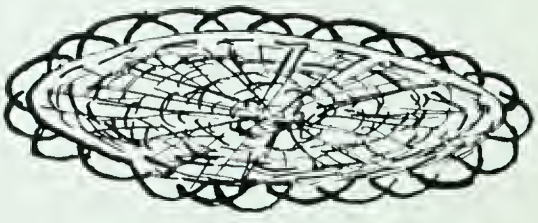
Spreading the spokes to divide them into groups of two.



Starting the pairing weave.



Making the scalloped edge.



Completed tea tile.

REEDCRAFT

INTRODUCTION

Reed is manufactured from rattan, a vine growing in the East Indies. It grows from 50 to 500 feet long and varies from 1/8″ to 1″ in thickness. The reed is made from the pith of the vine. The thinnest size, #1, is the most expensive. This size is used for fine basketry. Numbers 2 and 3 are generally used as weavers, whereas the larger sizes are used for spokes, handles, and in making larger baskets.

THE PREPARATION OF REED FOR USE

1. Reeds should be withdrawn by the loop end from the bundle.
2. The spokes should be cut to their required length; the weavers should be wound in circles, the ends twisted in to prevent unwinding; and both spokes and weavers *must* be soaked in water until pliable. Reed should be soaked only as needed. Repeated soaking and drying, or prolonged soaking is injurious to the fibre of the reed.
3. If the reed becomes dry while it is being used, it must be soaked (sponging will do for thin reed) until it is again pliable.

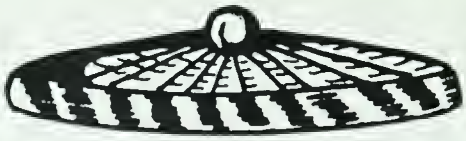
TEA TILE

Materials required— 8-10″ spokes #3 reed; 1 length of #1 reed; 2 lengths of #2 reed, water, pliers, shellac, knife.

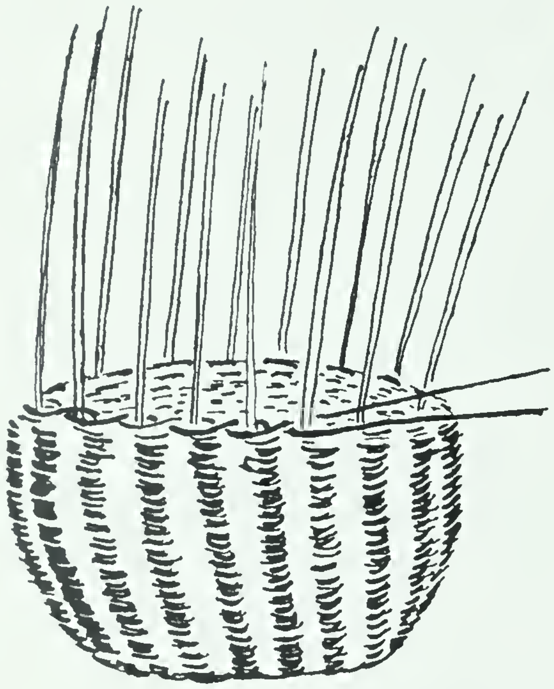
1. Soak the spokes and weavers before beginning to weave base.
2. Pierce four spokes through the middle to make slits that are long enough to have the other four spokes drawn through the opening. Make sure that the spokes lie flat and side by side. See diagram.
3. Since there are an even number of spokes (16 weaving ends) the pairing weave must be used.
4. To make the base, double the #1 weaver around one group of four spokes—by bringing the back weaver to the top, and the top weaver behind the spokes. Pull the loop made by this operation in close to where the spokes cross. See diagram.
5. Next put the top weaver under the next arm of spokes, and the back weaver over the same arm. Remember to draw the loop made closely into the intersection. Repeat this step until there are three complete rows around the four groups of spokes. See diagram.
6. Separate each group of four spokes into two groups of two spokes. Continue to weave four complete rows about the eight arms, which should radiate like the spokes of a wheel.
7. Should a new weaver be required, place both ends of the used weaver behind the nearest spoke. Find the middle of a soaked new weaver, bend at this point and put the loop made over the spoke *immediately before* the one in back of which the ends of the used weaver lie. Continue to weave as before. Disregard the unfinished ends until the tile is completed; they are cut off then. See diagram.
8. Separate each group of two spokes into single spokes (there are now 16) and continue to weave as before. See diagram.
9. When the weaving has reached 5″ in diameter, cut all the spokes that extend beyond the weaving to the same length. Soak these protruding spokes to make sure that they are pliable. Bend each spoke to the right and insert into the space alongside the next spoke. If the extending spokes are long enough, they may be carried over to the second space. This operation will make a simple but pleasing scalloped edge.
10. Use a candle or alcohol lamp to remove the fibre "hairs" by singeing. The flame must be moved quickly, and not be permitted to burn or discolour the reed.
11. Shellac. Allow to dry.

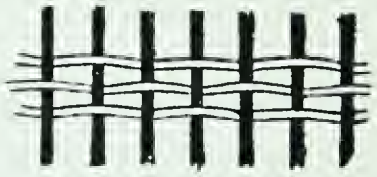
* * *

I can rand, at your command
Put on a decent border,
Upset tight, wale aright
And keep my stakes in order.
—*Old Basketmaker's Rhyme*

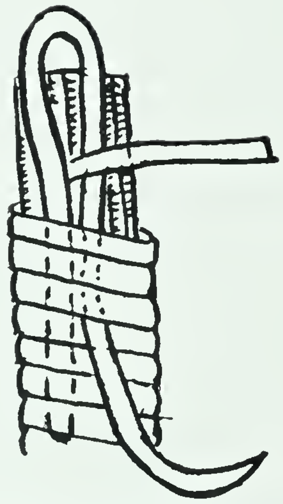


Basket cover. Handle is made from a single piece of wide flat reed.





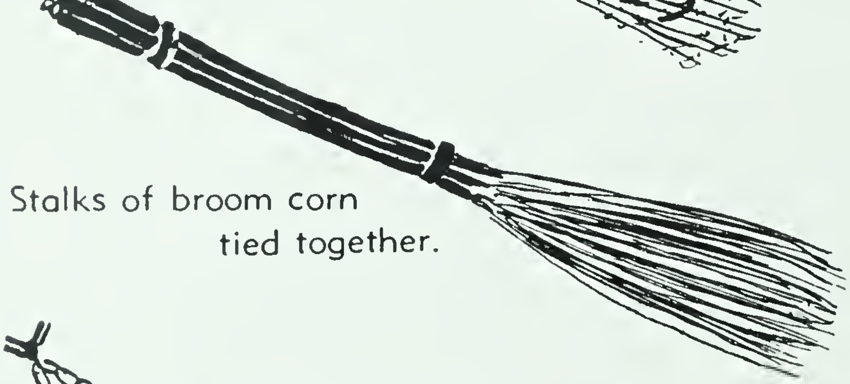
The in-and-out weave.



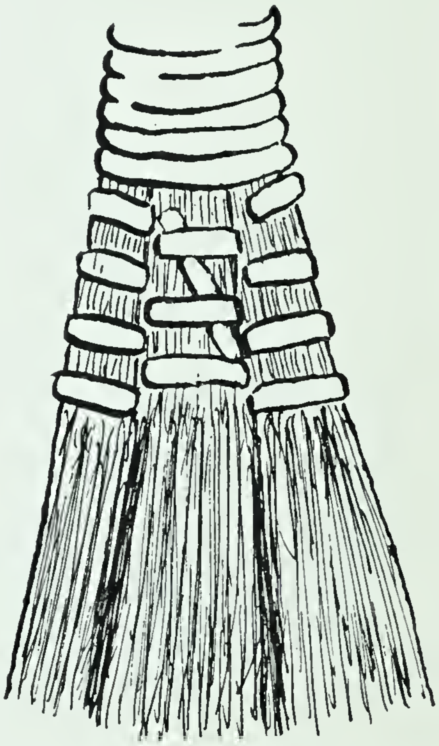
Whipping the end of reed to finish off the handle.

HEARTH BROOM

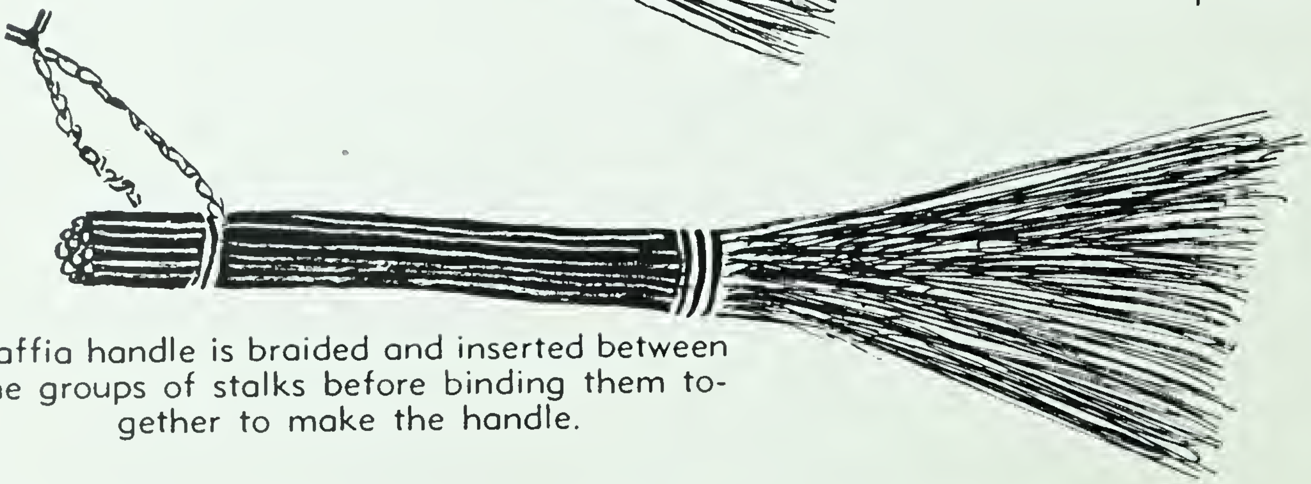
Stalk of broom corn.



Stalks of broom corn tied together.



Beginning to wind the flat reed, so as to spread the broom portion



Raffia handle is braided and inserted between the groups of stalks before binding them together to make the handle.

Basket

Materials required—8-11″ spokes #4 reed, 32-8″ spokes #3 reed, 1 length of #1 reed, several lengths of #2 reed as needed, pliers, water, shellac, alcohol lamp.

1. Weave a base (See description for the Reed Tile, 1-8 inclusive, p. 43.)
2. Cut off spokes of the base close to the weaving.
3. Push soaked, pliable new spokes—#3—about 1″ along the spaces at each side of the base spokes.
4. Turn up these spokes so that they may be used as a basis for weaving the sides of the basket. Continue to use the pairing weave. See diagram.
5. It is possible to shape the sides of the basket by spreading the spokes in or out as desired.
6. When a suitable height is reached—5″ or 6″—trim the spokes extending beyond the weaving and finish with scallops.
7. Singe. Shellac. Allow to dry.

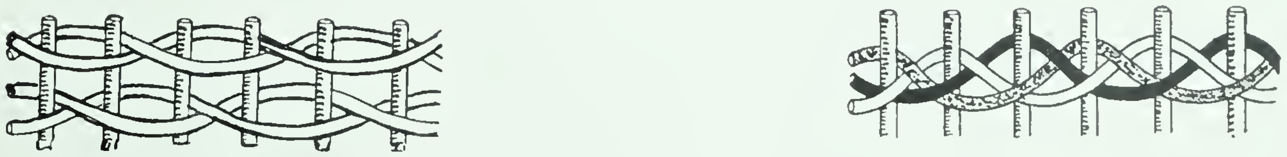
A cover for this basket can be made by repeating the steps used in making the basket. The diameter of the cover will have to be slightly larger than the diameter of the base of the basket; the depth of the cover should not be more than 1½″; the basket, instead of having scallops above the weaving, will have them close to the weaving—the open scallops now being used on the cover.

When the student is familiar with the steps involved in the making of a basket, he may experiment using various sized reeds or a variety of weaves, or both, to get pattern into the sides of the basket.

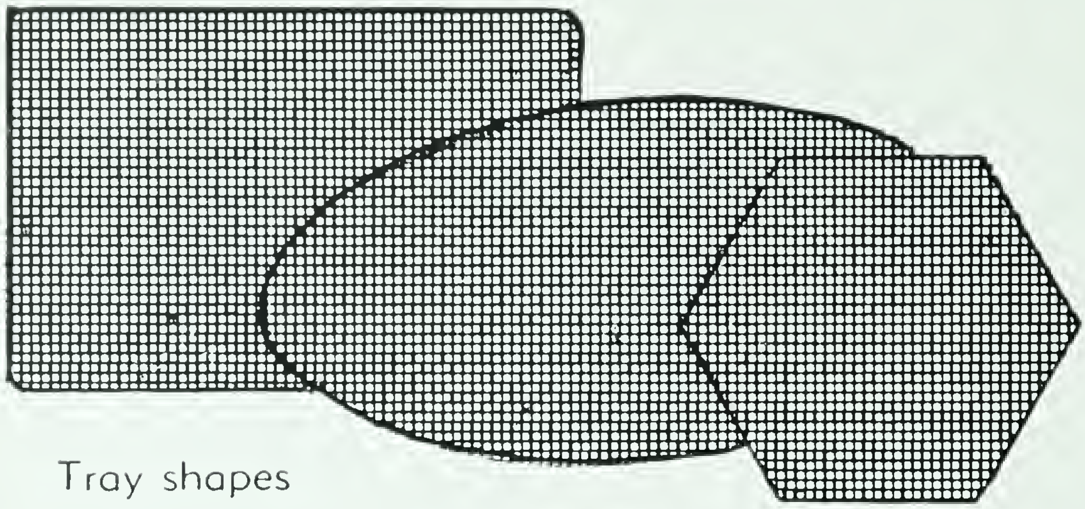
Hearth and Whisk Brooms

Materials required—12 stalks of broom corn (secure from the local broom factory), raffia, winding reed, picture wire, vegetable dyes, alcohol, shellac, knife or heavy shears.

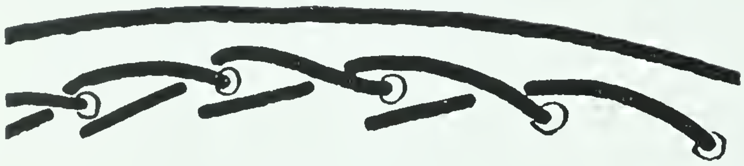
1. Remove seeds from corn with a coarse comb.
2. Line up the stalks to get as long a broom as possible. Cut off any projecting portions.
3. Tie the stalks together in groups of three or four. About 6″ from the top and 3″ from the bottom of the stalks, bind each group securely with raffia or picture wire. Then bind all the groups together with picture wire.
4. Take previously soaked winding reed and begin to weave as shown in diagram. This in-and-out weave will tend to spread and give shape to the broom portion.
5. After weaving toward the handle end for 3″, wind the reed completely around the tied stalks, so that the edges of the reed touch one another as it winds upward.
6. Should a new winding reed be needed, finish the used reed by inserting it through groups of stalks making up the handle.
7. Square off broom portion.
8. Prepare a bath of vegetable dyes in a large shallow pan or tray. Place completed hearth broom in the dye bath, turning it over from time to time so that all parts will be in contact with the dye, until the desired depth of colour is obtained. Allow to dry.
9. Shellac handle portion.



Alternate weaves

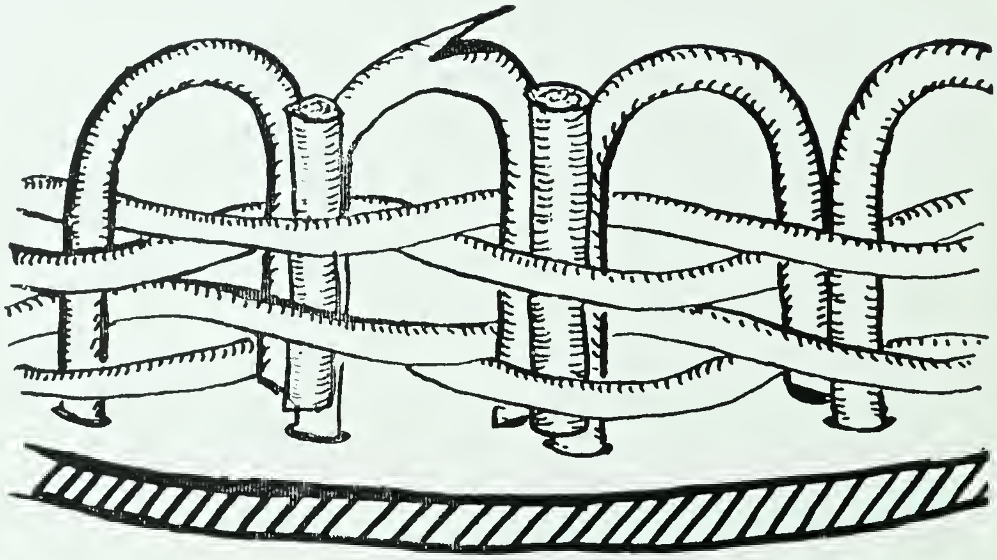


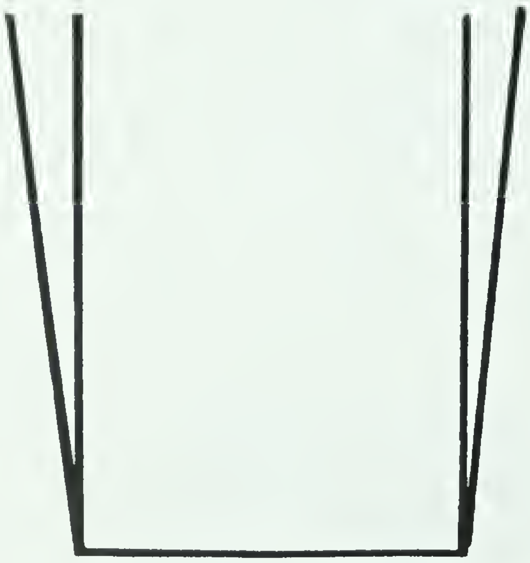
Tray shapes



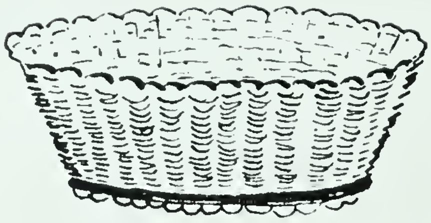
How to secure the spokes on the underside of the tray.

Should a spoke break or split, it can be removed and another substituted. Place a length of reed in the weave before removing the broken spoke. Moisten new spoke and insert it through the empty hole. Bend new spoke into position, and remove length of reed.

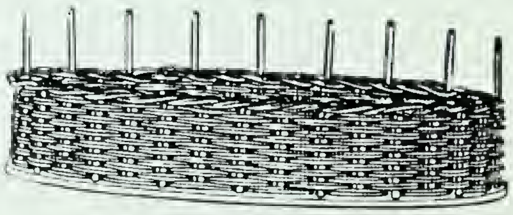




Wastepaper basket silhouettes—alternate shapes.



Bun barge



Sewing basket

WOODEN BOTTOM TRAY

Materials required—plywood, coping saw, #4 reed for spokes, several lengths of #3 reed for weavers, sandpaper, pliers, carbon, thumb tacks, enamel paints, india ink, brushes, drill, varnish.

1. Read instructions on Rope-Edged Tray—Woodcraft. They are exactly the same for this type of tray, only that reed is substituted for rope at the edge of the tray. Repeat steps 1-12 inclusive.
13. Use the pliers to cut as many 8″ spokes—#4 reed—as there are holes. Soak these spokes *well* before using.
14. Push the spokes through the drilled holes. Let them extend 3″ beyond the base. Bend each spoke down in turn *to the right,* in front of the first and in back of the second. This operation will not only make all the ends point toward the inside of the tray, but will secure them firmly. (See diagram.)
15. If there are an even number of spokes, use the pairing weave. Should the number of spokes be uneven, use the in-and-out weave. To start a new weaver, keep the end of the used weaver toward the inside of the tray. Start end of the new weaver at the spoke *immediately preceding* the one behind which the end of the used weaver is placed. Then continue to weave as before. (See diagram.)
16. An inch and a half is the proper height for this kind of border.
17. Cut spokes extending beyond the weaving so that they will all be the same length. Soak these *well* to prevent them from cracking while they are being bent to make a scalloped edge.
18. Singe and shellac the weaving when complete. Allow to dry.
19. Clear varnish the whole unit. Allow to dry.

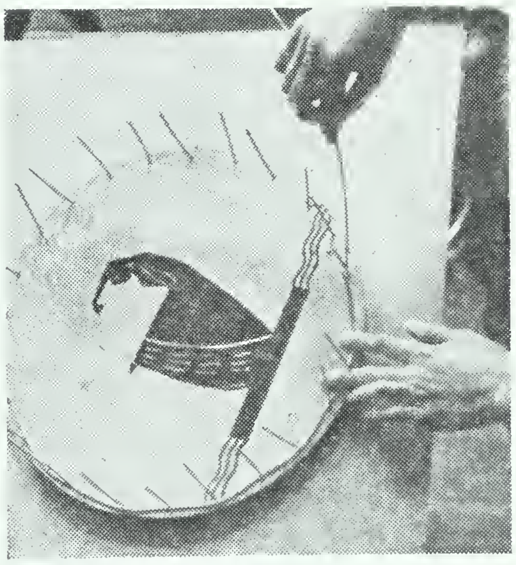
WOODEN BOTTOM WASTEPAPER BASKET

Materials required—same as those used for tray with additional lengths of reed for spokes and weavers. Enamel paints will not be needed.

1. Cut base, drill holes to accommodate #5 reed for spokes. Sand base.
2. Spokes should be about 18″ long.
3. Repeat steps 13-17 of wooden bottom tray.
4. To get a pattern in the sides of the basket, any of the following methods might be used: (1) vary the kind of weave; (2) vary the size and kind of reed used, and (3) vary the colour of the reed by using vegetable dyes.
5. Repeat steps 18 and 19 of wooden bottom tray.

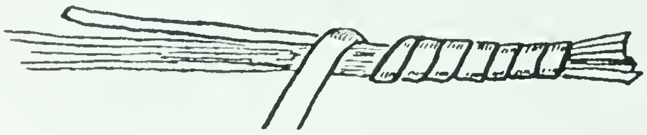
BUN BARGE

The shape of the base determines the shape of the woven sides. The spokes are bent slightly outward during the weaving.

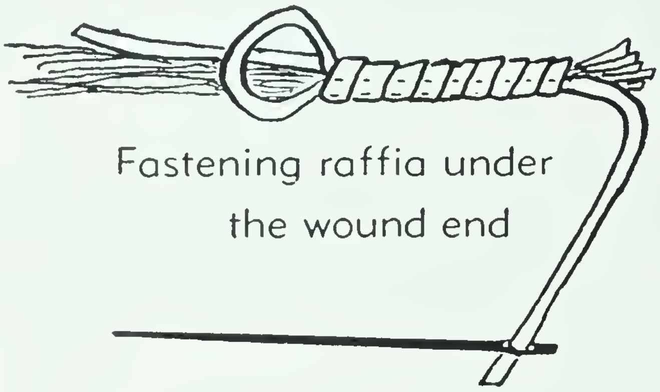


Starting the in-and-out weave

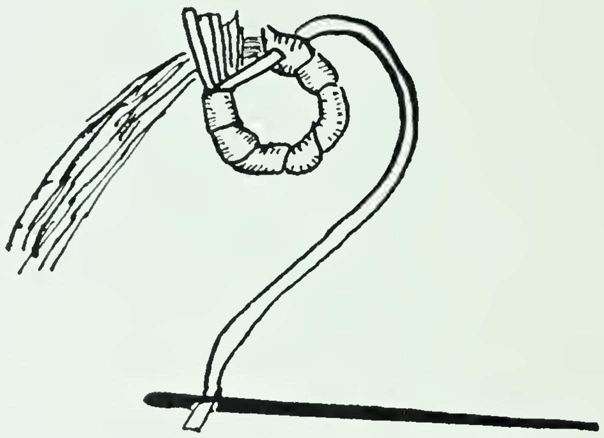
Making the scalloped edge



Winding raffia about the core

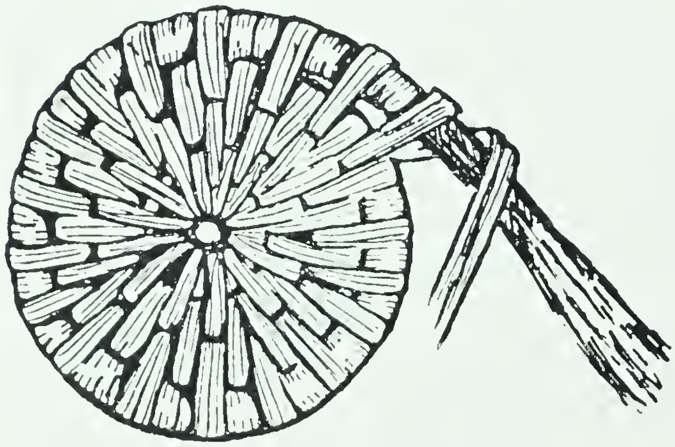


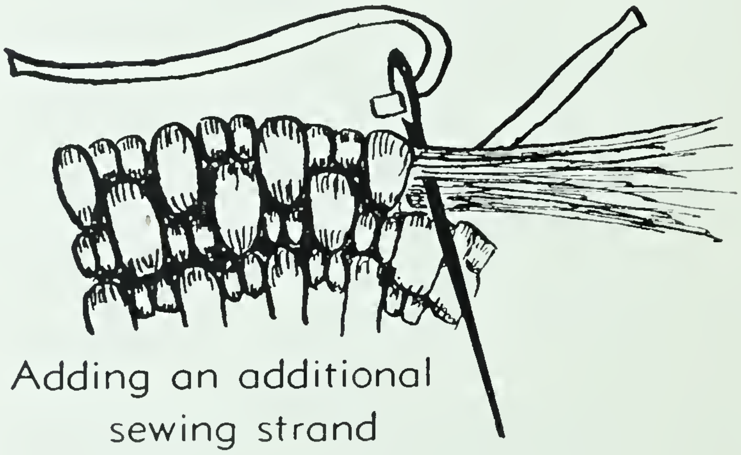
Fastening raffia under the wound end



Making the starting ring

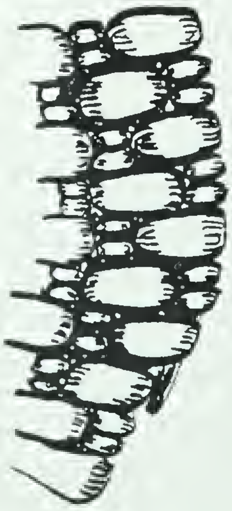
Lazy Squaw stitch in action

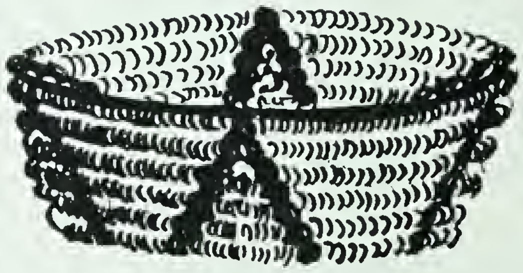




Adding an additional sewing strand

Finishing the basket by tapering the core





Completed basket showing pattern

RAFFIA BASKET

Materials required—raffia, darning needle.

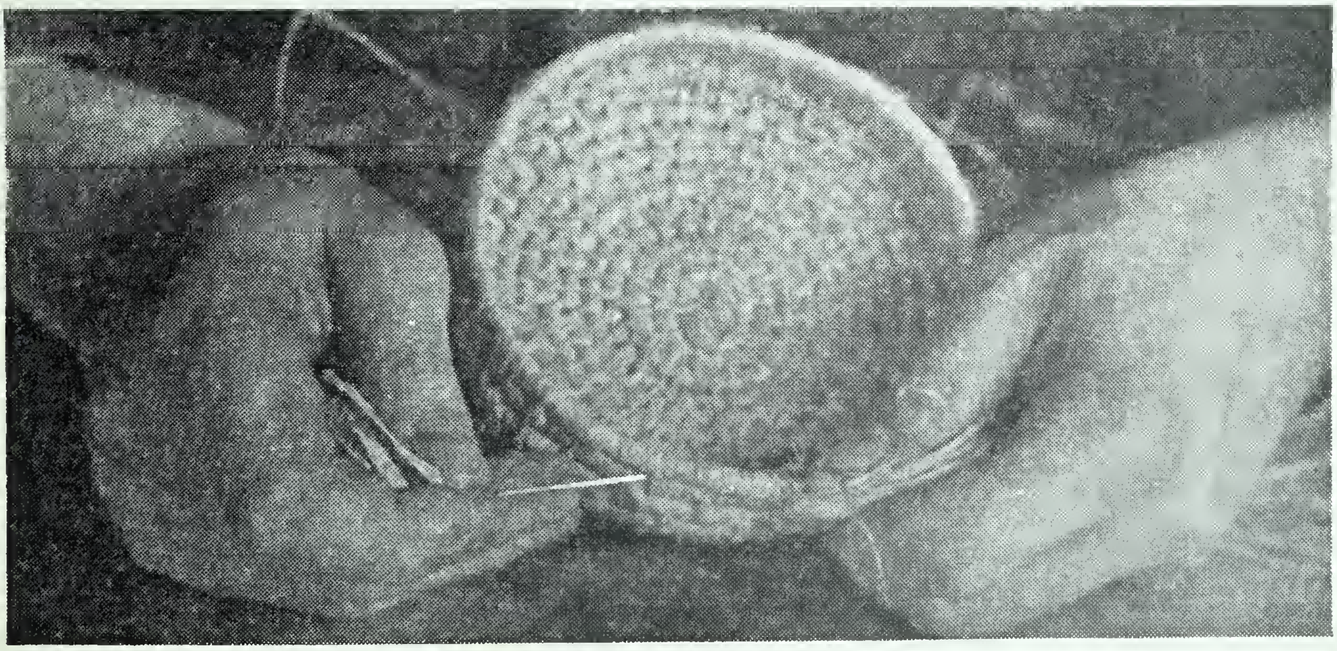
1. Thread a blunt darning needle with a long single strand of raffia.
2. Take several strands of raffia to serve as the core of the coil and start wrapping them at the free end as illustrated in I. Keep the edges of the raffia strand close to one another, to cover completely the core strands.
3. Double the needle back under the wound end to secure the raffia as in II.
4. Twist the wound end into a small ring and make it secure by piercing the wound end with the needle threaded with the strand. (See diagram III.)
5. Spiral the raffia strand a few times about the uncovered core, and then pass the needle through the hole in the ring. Continue to spiral the strand about the uncovered core, securing it to the centre until three complete coils have been made.
6. When starting the fourth coil, instead of threading the strand through the centre hole as before, put it through the space between coil 2 and 3. Next, wind the strand about the uncovered core (which eventually will be coil 4) at least twice, and then pass the needle under coil 3. This will make two short stitches and one long one, the latter being the stitch which binds the coils together. Continue with two short stitches and one long one until the fourth coil is completely made. Proceed in the same way to make as many coils as are necessary for the base of the basket.
7. If the core of raffia becomes thin, add more raffia by placing 5 or 6 strands on the used core just before the end is reached. Join the new strands to the old core by wrapping both with the winding strand. Diagram V illustrates how to add a new winding strand.
8. To make the walls of the basket, the new coil is not placed at the side of the last coil—this would only make the base larger but on top of the previous coil using the same stitch. The height and shape of the basket is a matter of individual choice.
9. Diagram VI illustrates the method used in finishing the basket.

QUESTIONS

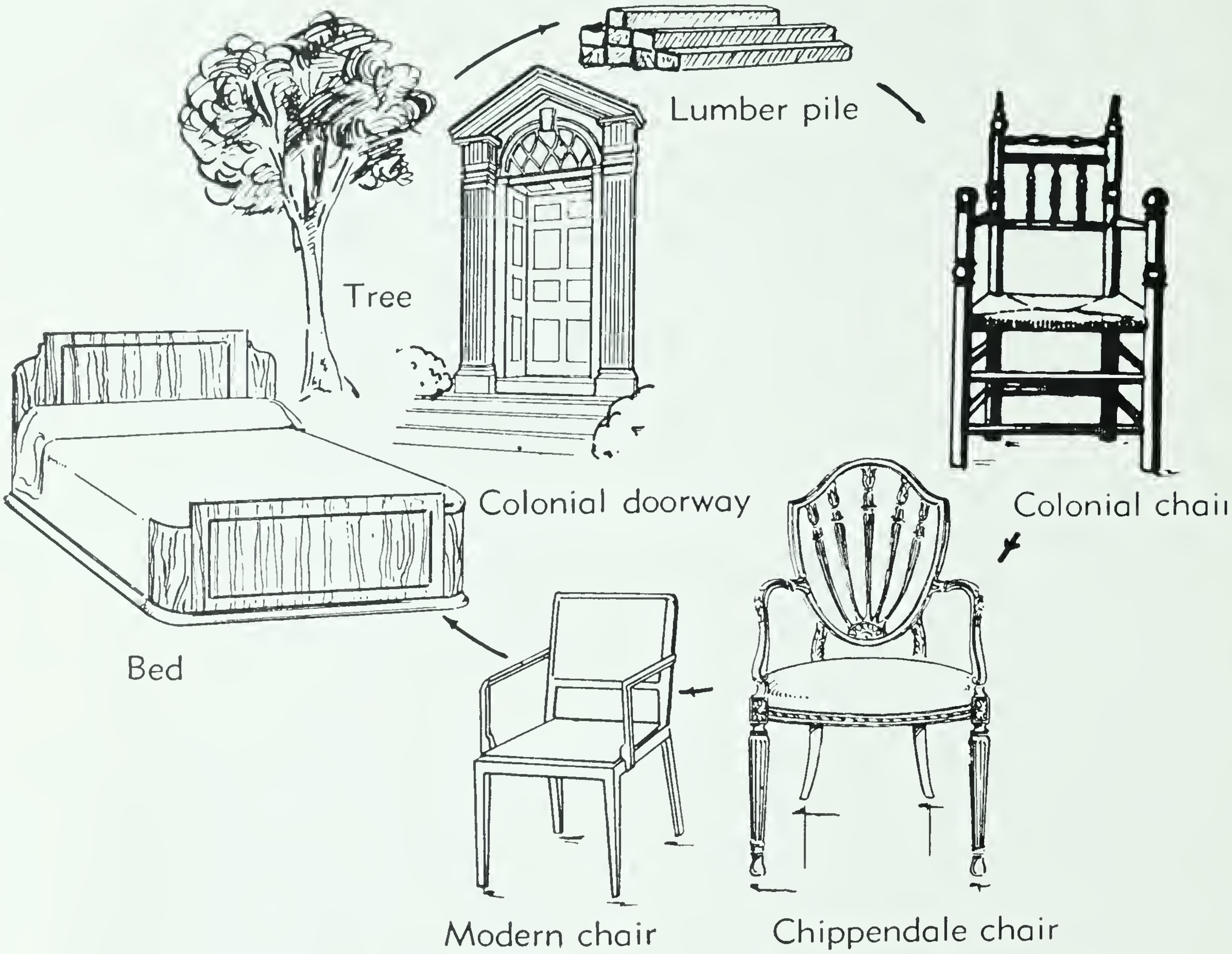
1. What is the most important "must" in reedcraft?
2. What difference is there between the in-and-out and the pairing weaves?
3. How can the surface of a basket be given an interesting pattern?
4. How is the starting ring of a Lazy Squaw raffia basket made?

ENRICHMENT ACTIVITIES

1. Read the article on Basketry in the Encyclopaedia.
2. Gather information on the Lake Villages of the New Stone Age with the aim of finding out the role played by Basketry in this period of the world's history.
3. To what extent were the native tribes of North America interested in Basketry? Collect information about their weaving methods and materials. Consult *The Picture Gallery of Canadian History*—Vol. I—Jeffrey—Ryerson Press, pages 46 and 47.



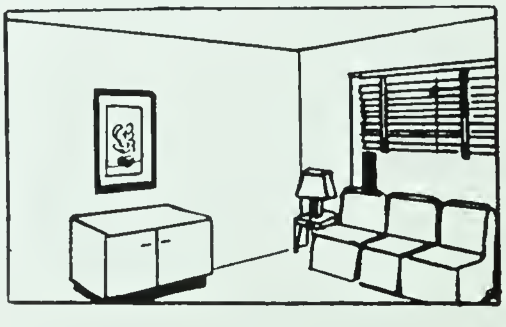
The Lazy Squaw Stitch in action



Hair style makes the difference

Examples of structural design

Surfaces for decorative design



DON'T THROW IT AWAY

	Can Be Used For
old project cards	lamp shades, wastepaper baskets
paper cartons and corrugated cardboard	containers, blotter pads
carbon paper	tracing on wood or soap
sheets of wrapping paper or wallpaper remnants	enlargements, friezes
cloth scraps	goofus birds
broken dentist tools	scribers
phonograph needles	scriber points for automatic pencils
tooth brushes	plastic buttons and rings
electric irons	metal anvils
cigar boxes	trinket boxes
metal cigarette tins	ornamental cigarette boxes
tin cans	address plates, metal tapping, liquid containers
broken hack saw blades	chip carving knives
old umbrellas	lino cutting tools
pen nibs	potato printing tools
spools	dolls, wheels
corks	lapel ornaments
orange sticks	clay modelling tools
broken scissors	soap carving tools
shells	ash trays, ornaments
candle stubs	beeswax or paraffin substitute
cold cream jars, glass bottles	painted trinket containers
felt hats	shelter shoes, crests
leather purses and gloves	leather belts, small leather articles
acorns and seeds	ornaments
burlap bags	belts
wire, wire screens, wire strap	wire figures, sifting clay, flower pot holders
pipe stem cleaners	figures, ornaments
macaroni	necklaces
bottle tops	patterns, tambourines
burnt matches	legs for clay figures
chalk boxes	card files
clothes pins	doll skeletons
	cart axles
	stuffing
	maps
	patterns

DESIGN

MEANING

Design is a much used, and a much abused word. You will hear it everywhere with reference to a great many things. The movies advertise "Design for Living", the radio blares "Modern Design", the milliner announces that she designs to fit your head as well as your purse, the architect is commissioned to design a new building, and so on. If you were to investigate the meaning that is common to the varied use of the word design, you would probably come to the conclusion that design is not a thing, but rather a way of doing things. It describes planning, choosing, or arranging ideas or things so that they will be more satisfying or useful than they were before the change was made.

Draw a face, and trace two copies without the hair. Make a different hair style for each of these two copies. Note the difference that this change makes to the appearance.

Arrange a tree, a house, and a path within three rectangles of the same size with the aim of obtaining three different effects.

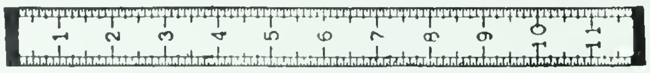
THE TWO-FOLD NATURE OF DESIGN

Take *one* piece of paper, on one side of which there is a typewritten note, while the other side is blank. Even though it is possible to talk about the side that has typing on it, yet we must not forget that without the other side, it would not exist at all. Thus you see that it is possible to discuss two different sides of the same thing. In a like manner, design has two sides which, for the purpose of discussion, might be separated into the structural and ornamental. But at no time must it be forgotten that they, or their parts, do not exist of themselves, but are views of a single thing, each depending upon, and completing, the other. The mass and shape of an aeroplane would come under the heading of structural design, and the decoration on the wings and rudder would be described as ornamental design.

Note two examples of structural design. Name and illustrate three others.

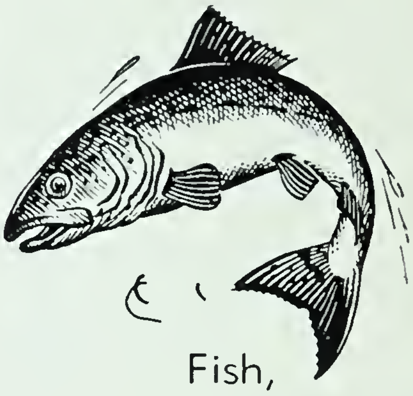
Bottle,

knife,

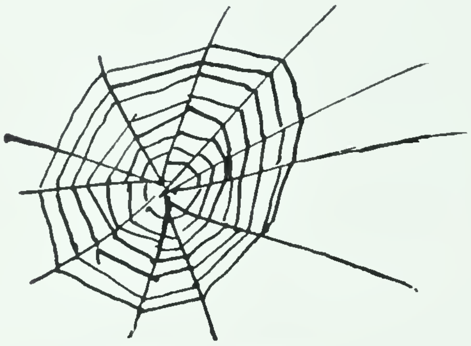


ruler,

heron,

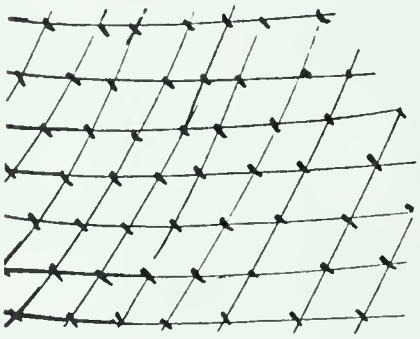


Fish,

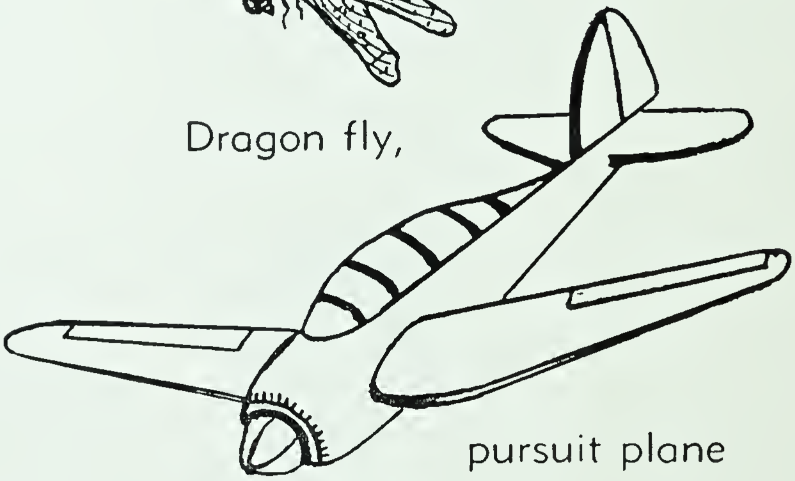


Spider's web,

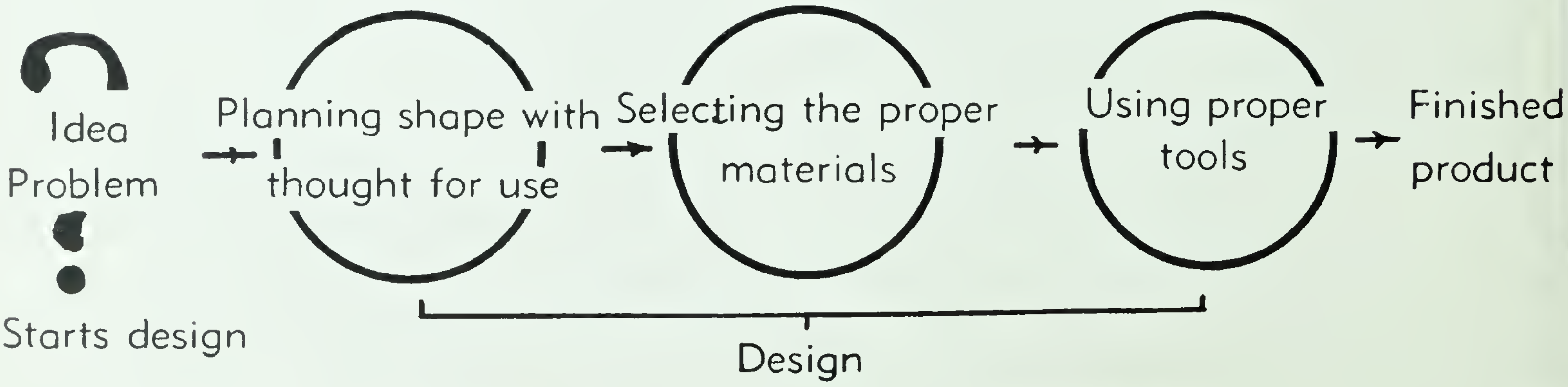
Dragon fly,



fish net



pursuit plane



Idea
Problem
Starts design
Planning shape with thought for use
Selecting the proper materials
Using proper tools
Finished product
Design

In the illustration of the room, name three surfaces to which pattern or decoration might be applied. Can you name three other common articles not to be found in the illustration that are decorated with a pattern? Illustrate and show pattern.

CONSIDERATIONS INFLUENCING DESIGN

I. Let us examine the shapes of some common everyday things in an attempt to determine why they have been made that way.

Essential Use	*Object*	*Structural Parts or Conditions Necessary for Such Use*
contain liquid	bottle	hollowness
support things	table	legs and top
cut things	knife	sharp edge
draw straight lines	ruler	straight edge
carry liquid a short distance	spoon	handle, and a hollow for the liquid

You can readily see that there is a relationship between the shape of an object and its function. This relationship is well summed up in the phrase, "Form follows function". Name five additional everyday objects, the shape of which is determined by the work each is intended to do.

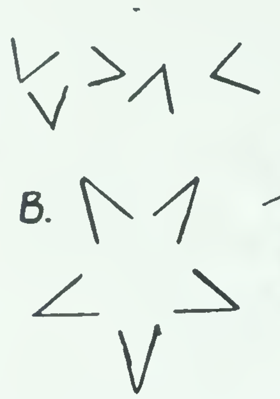
A study of natural forms will provide additional opportunities to illustrate the connection between shape and use. Can you account for the stream-lined shape of the fish? The sword-like shape of the thorn? The long legs and neck of the heron? The long ears of the rabbit? In fact, man has copied many shapes from nature whenever he has been faced with doing a similar task. Doesn't the huge bomber resemble a dragon fly? The military helmet, a turtle's shell? And a fish net, a spider's web?

II. It is surprising how often ordinary common sense is neglected in designing, because students fail to take into account the importance of using the most *appropriate materials and tools* for the project in hand. Even though they may not attempt to make a desk out of snowflakes, or to dig a ditch with a spoon, yet they attempt to do things that are equally inappropriate, if not as extreme. Thus materials should be appropriate for the purpose intended. Running shoes may be just the thing for the gymnasium floor, but that does not make them fitting for the dance floor. Your football sweater may be right for the classroom, but not for the class party. Which type of clock would you choose for your bedroom, an old-fashioned grandfather clock, or a modern electric clock? In the Art room, should scissors be used to cut picture wire, sandpaper or reed? Why should you hesitate to use water colours to decorate a glass bottle? What is the only material upon which a wood chisel should be used? Can you explain why (1) fine lace should not be used to trim a heavy, coarse woollen sweater; (2) a carving knife should not be used for ordinary soap carving; (3) a mapping pen should not be used for lettering a three-foot poster? It cannot be too strongly stressed that the proper use of material and tool will in many cases mean success of a project; or the misuse, failure.

* * *

Art—A Useful thing beautifully made.—*Tolstoy*

The inventions of the unknown call for new forms.
—*Rimbaud*

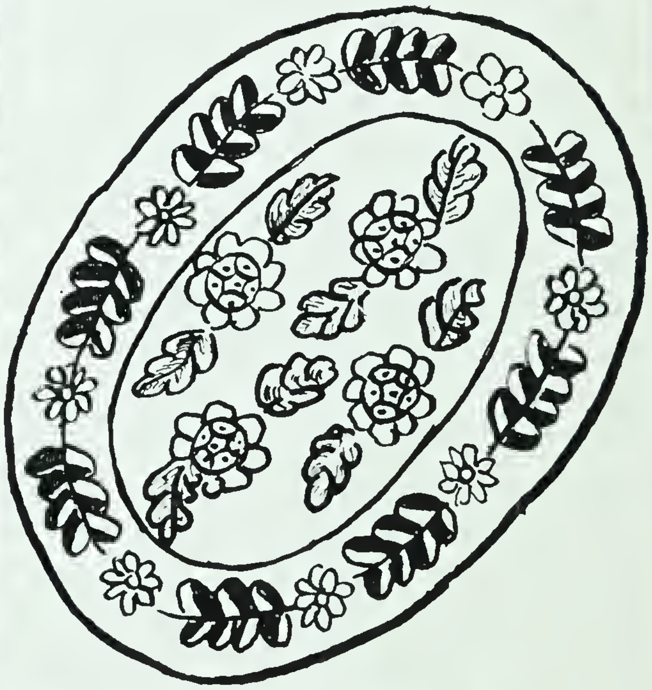


The whole is greater than the sum of all its parts.

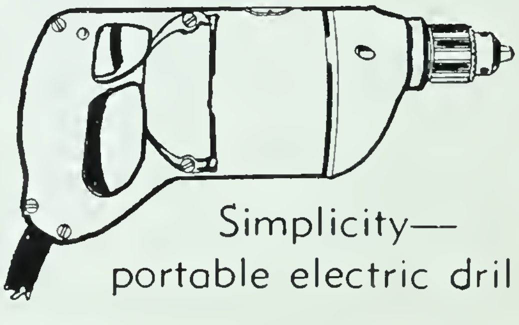
Harmony between parts; since every part is streamlined, the whole plane should be streamlined.

Giotto's Tower, Florence—unity of masses.

Stained glass window—harmony between purpose and place.



Habitant hooked rug—harmony between outside shape and the surface decoration.



Simplicity—portable electric drill.

III. When we talk about *unity* in a structure, we imply that all the parts are bound together into a whole which is more than the mere addition of all its parts. Diagram B is more meaningful than A because the elements in B are so arranged that not only are they seen, but they form an additional unit—the star—over and above themselves. Unity may be achieved through the use of related lines, masses, or colours. Have you noticed that the well-dressed man does not wear a brown hat, green tie, blue suit, red socks, and black and white shoes? Unity is strengthened when there is a harmony between the decoration and the use to which the object is put. The stained glass windows of the mediaeval church not only flooded the interior with soft light, but also served to tell, by illustration, the religious stories to those unable to read. Harmony between the decoration and the shape that is being decorated, adds to unity. A rectangular pattern is more fitting on a rectangular mat than on an oval mat. And finally, there should be harmony between the decorative units themselves—not only is a plane stream-lined, but so are all the parts which go to make up the plane.

Study Main Street of your community, and decide which of the structures add or detract from the impression a visitor might get about the unity of its planning.

What lines in a picture give the impression of quiet or repose? Activity? Dignity? Secure a picture which exemplifies any one of the above and note the number of times related lines are used to support the impression.

IV. Accent (dominance, emphasis) is the means by which the most characteristic part of the design is brought to our attention. It may be the centre of interest, even though it is never at the actual centre. Often the designer brings the chief idea to our immediate notice by use of contrast in colour, size, shape, area, tone, or theme. A famous picture that provides a good example of this design aspect is the Surrender of Breda by Valesquez, in which the transfer of the key to the city from the vanquished to the victor is the significant feature. All other masses, though larger in size, are subordinate in importance to the key.

V. Simplicity involves the ability to include just enough detail to convey the meaning intended, and no more. This is a difficult thing to do, because the lack of detail is just as great a fault as an over-abundance. The Classical Greek and the modern designers stress this aspect of design.

Compare a picture of a Victorian parlour and a modern living room. Which room would require more attention to keep it clean and in order? Why?

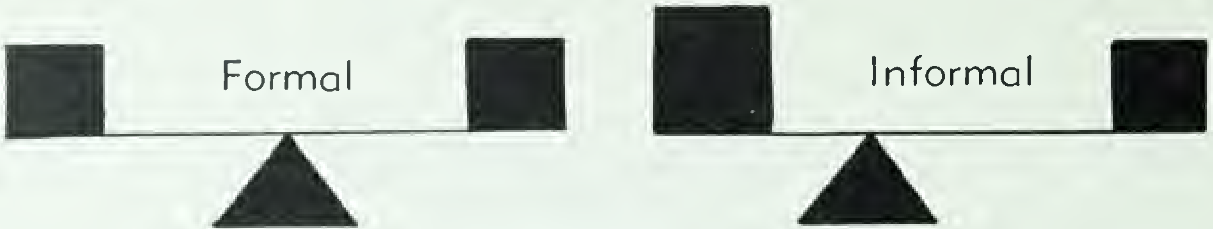
Procure from the Library pictures of military helmets that were worn by the ancient Greek soldier, the mediaeval knight, and the modern infantryman. In which helmets are simplicity and utility combined?

* * *

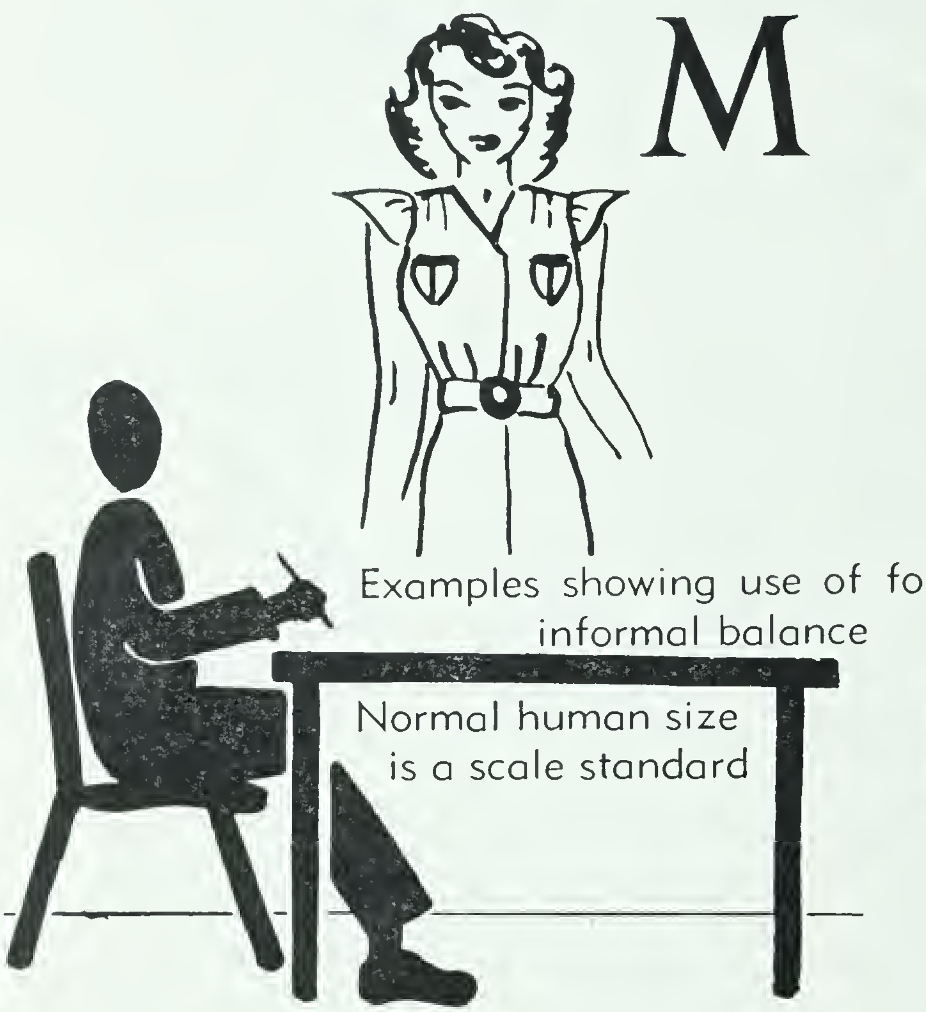
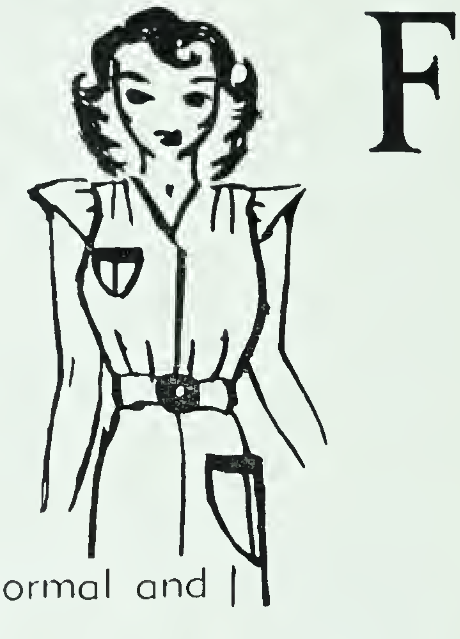
Art can never make the rules to make an Art. —*Edmund Burke*

There are certain periods in art when simplicity is audacious originality.—*A. Poincellot*

All the arts are brothers; each one is a light to the others.—*Voltaire*



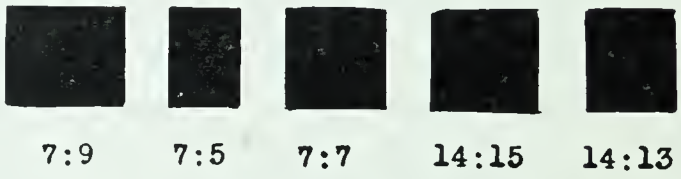
BALANCE

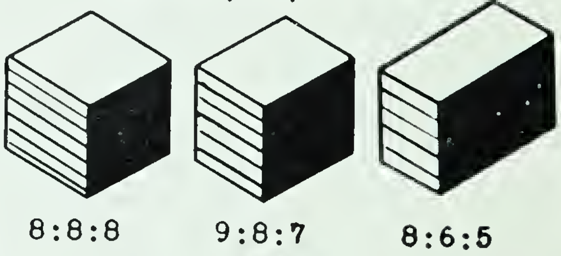
Examples showing use of formal and informal balance

Normal human size is a scale standard

Space proportion



Mass proportion



RHYTHM

The Wave—Hokusai

Conventionalized plant

VI. Balance is that feature of design which gives it stability. This is generally achieved in one of two ways: (1) by having one side of the object or pattern identically the same as the other side. Such formal balance is simple, dignified, and can easily be seen or recognized; and (2) by distributing the masses or lines in an object or pattern so that the balance is felt, rather than seen: such informal balance is more difficult to achieve, but is more interesting and affords more movement to the eye than does formal balance.

Plan a formal and an informal curtain arrangement for a window.

Divide the letters of the alphabet into formal and informal balance groups.

By plotting the positions of players, determine the kind of balance used in baseball, basketball, and hockey.

Illustrate how both kinds of balance might be used at different times in decorating a mantel with a vase and books.

VII. A pattern or mass is said to have good *proportion* when each of its parts is of a size best suited to the role it has to play. Since a Canadian dollar bill differs in size from an English pound note, a wallet design for the one would not be suitable for the other. The size of the normal person is frequently used as a standard of proportion for many objects. The height of the table is determined by the height of the average person when seated, and the size of a public building by the number of persons it is expected to accommodate.

In addition to considering the relationship between an object and an outside standard of scale, there are relationships of length, width and height which depend upon an ability to sense when those relationships are satisfying. Mathematical ratios like 7 to 9 and 7 to 5, have been found to be generally satisfying. A square 14 to 14, while satisfying for a while, tends to become uninteresting because of its regularity; and 14 to 15, or 14 to 13 are so near to the square that they confuse the spectator and hinder the feeling of satisfaction. A similar condition exists with regard to masses. A table 8:8:8 is too regular; 8:9:7, too confusing; while 8:6:5 is satisfying.

Explain what is implied in the comparison —"as interesting as a checker board".

VIII. Rhythm is a kind of repetition which gives movement and life to design. The emotional element in rhythm can be more easily sensed than described. Below, a series of upright lines are repeated at regular intervals. They might have the same effect as the beating of a tom-tom. ı ı ı ı ı ı ı. If we change the quantity of the beat, or the length of the line, we can produce an elementary type of rhythm — li li li li li. Further changes — lii lii lii lii lii imimproves and increases the quality of the rhythm.

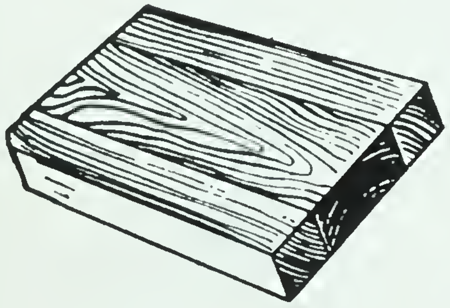
The change from one set of lines, or masses, to another (see *The Wave* by Hokusai) or the gradual growth of a structure to a conclusion that is felt, rather than measured (Conventionalized Plant) are other ways in which rhythm is expressed.

Make a collection of diagrams, illustrations, or pictures that express the rhythm quality of design. Animals in motion, birds in flight, figures in action —dancing, sports, etc., are a good source.

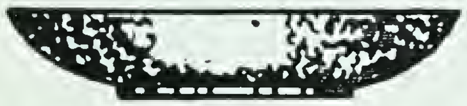
Decorative Design

Many people believe that art can be applied to an object merely by the addition of ornament. This is an entirely mistaken viewpoint, since ornament and art are not the same thing. If an article is well planned, its artistic quality is already in the structure, and the addition of ornament is but the finishing touch. In some materials, the ornament is present in the surface, as in the grain of wood or in the texture of fabrics. If the surface of an object provides no rest for the eyes that are looking at it—bare walls cry for pictures, hangings, plaques, etc.—then ornament becomes necessary to relieve that feeling of emptiness. Here a caution is necessary: the ornament must in no way be so interesting or so compelling that the attention of the spectator is drawn to it, rather than to the whole of the object.

Ornament found on the surface of material



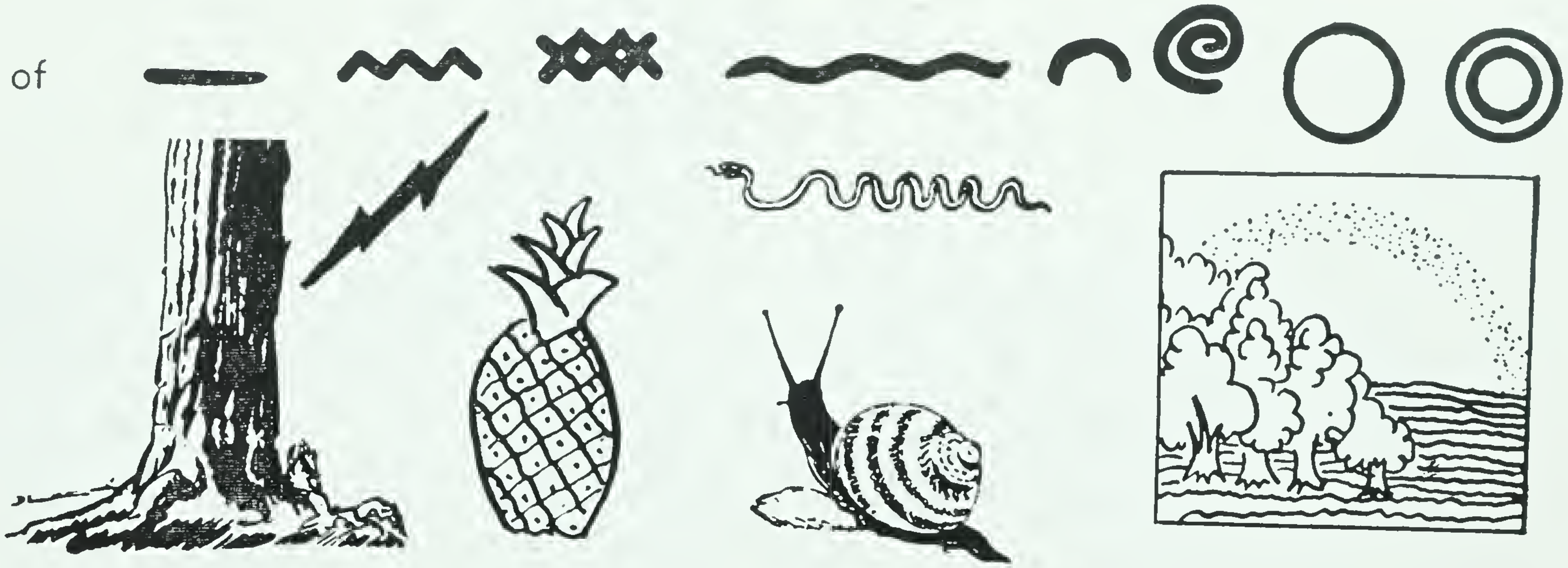
Grain in wood



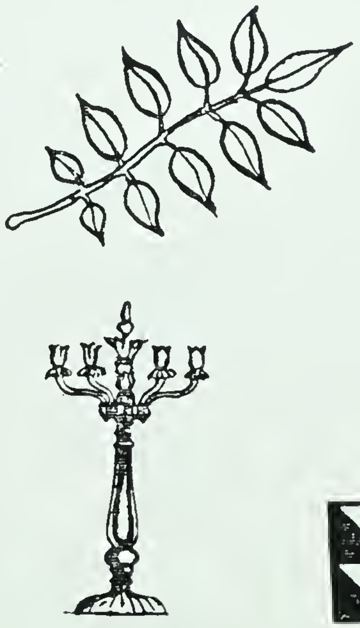
Hammer works on metal

In-and-out weave of basket

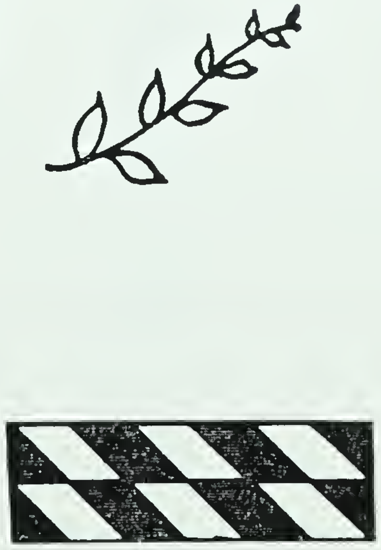
PATTERN ELEMENTS OBSERVED IN NATURAL OBJECTS



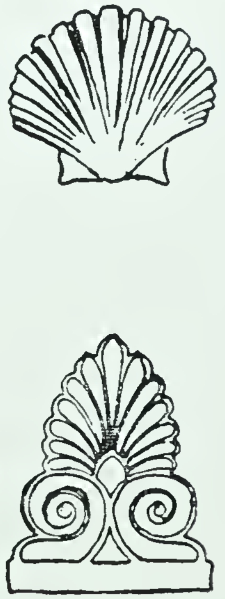
PATTERN ARRANGEMENTS OBSERVED IN NATURE



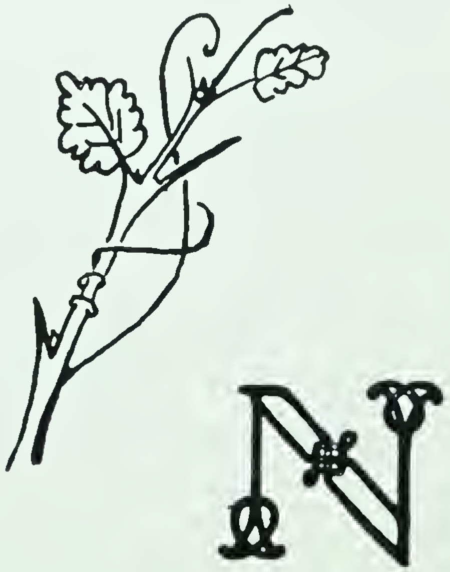
Symmetry



Alternation



Radiation



Interlacement

The most fitting kind of ornament is that which grows out of, and emphasizes the form — the drip glaze on pottery, the hammer marks on beaten metal, the checker pattern of reed baskets. Find and bring to class other examples to illustrate ornament which emphasizes the form.

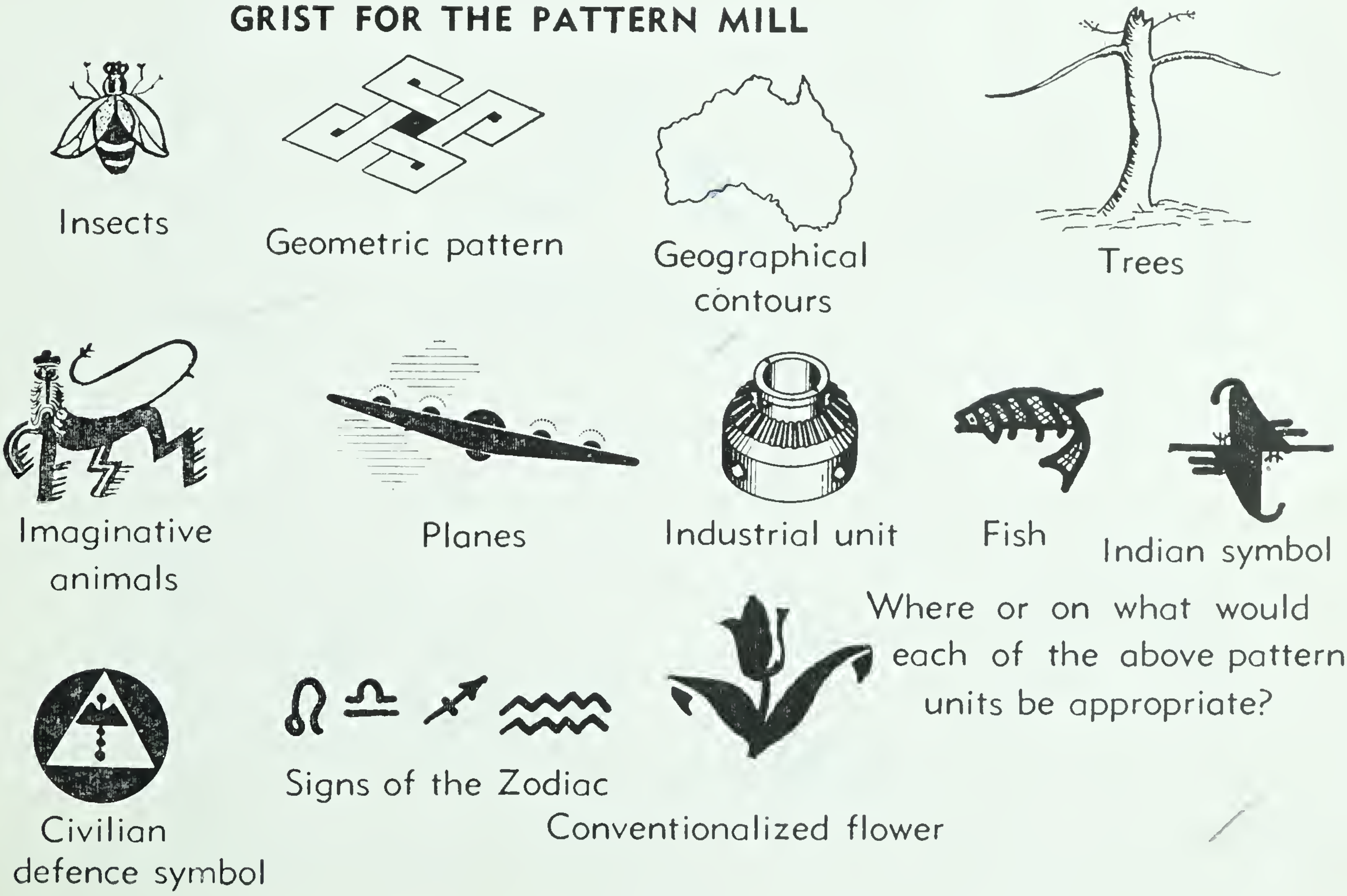
Ornament should not be used when there is no relationship between it and the object to which it is applied—i.e., a flower pattern on the cover of a mathematics text; or when there is no relationship between the time represented by the ornament and the surface to which it is applied—i.e., a Currier and Ives print in an ultra-modern room; or when its application hinders the effective use of the article—i.e., ornate carving on the top of a dining table.

Pattern Sources

Nature is the great reservoir of pattern. Investigation will not only reveal an endless variety of characteristic natural forms—plants, animals, rocks, clouds, etc.—but, within these forms, geometric elements may be observed. The straight line may be noted in the beaks of birds, the sides of a mountain, the trunk of a tree, the zig-zag line in flashes of lightning, cross-hatched lines in the covering of a pineapple, semi-circles in the rainbow, wavy lines in the swell of the ocean waves, spiral lines in the snail's shell; circles in flower shapes, sun and the moon, concentric circles in the whirlpool. Be on the lookout for more examples to add to this list.

Designers have adopted the arrangements found in Nature, such as (1) symmetry—a balance produced by the doubling of any form on its own axis; (2) alternation—the unit on one side situated between a pair of units on the other side; (3) radiation — the spreading out of lines or masses from a common centre; (4) interlacement—the intertwining of one form with another. The diagrams on the opposite page will illustrate the definitions and show their application in decorative design.

GRIST FOR THE PATTERN MILL



Insects

Geometric pattern

Geographical contours

Trees

Imaginative animals

Planes

Industrial unit

Fish

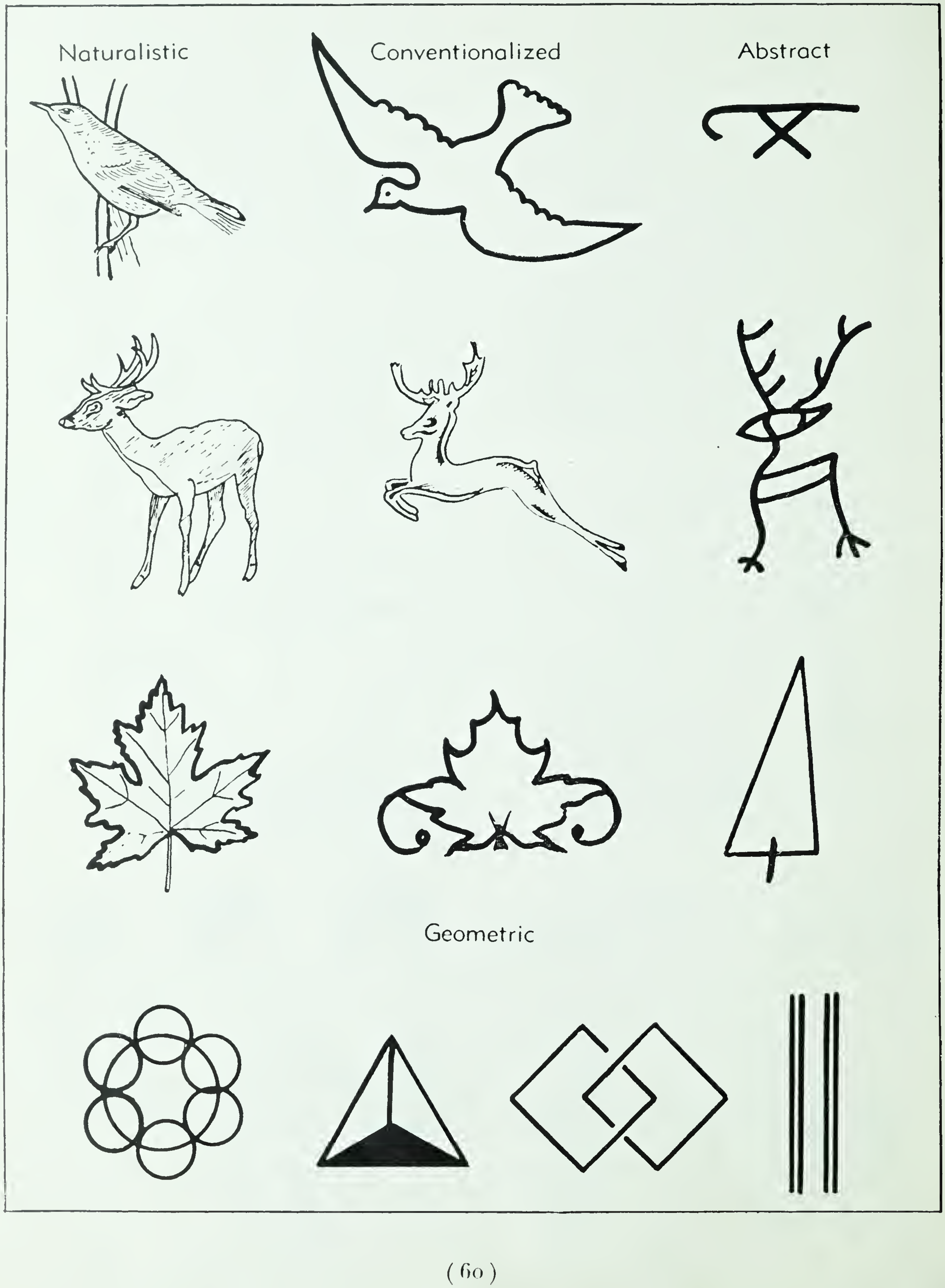
Indian symbol

Where or on what would each of the above pattern units be appropriate?

Civilian defence symbol

Signs of the Zodiac

Conventionalized flower


Naturalistic
Conventionalized
Abstract
Geometric

PATTERN TYPES

The units of pattern may be divided into four main types—naturalistic, conventionalized, abstract, and geometric. Naturalistic units show how an object actually appears—bird, tree, animal, human, etc. Each may be used for decorative purposes, but is not in itself a pattern. When, to suit the designer's need, the form or outline is changed or simplified so that only those characteristics which give it group meaning remain—all birds have wings, heads, feathers, feet—then the pattern is said to be conventionalized. With continued used a conventionalized unit may be simplified or changed even more until it finally becomes a symbol. This symbol differs so much in appearance from the original form that it bears little resemblance to it. The letters of the alphabet come within this classification since they represent the pictures of objects which may have contained the sounds with which they are now associated. Such symbols are understood, rather than recognized. For this reason, abstract symbols are used to represent ideas which have no concrete form—happiness, fear, abundance, etc. Refer to the collection on Indian symbols on page ——. The basic geometric units—circle, triangle, square, and line—together with their combinations and variations have long been used for decorative purposes.

Show how the realistic form of the horse, fish, house, and water may be changed to come under the classification of conventionalized and abstract types.

List ten places where geometric patterns are used for decoration.

Classify the pattern units, page 59, and arrange them according to the four types outlined above.

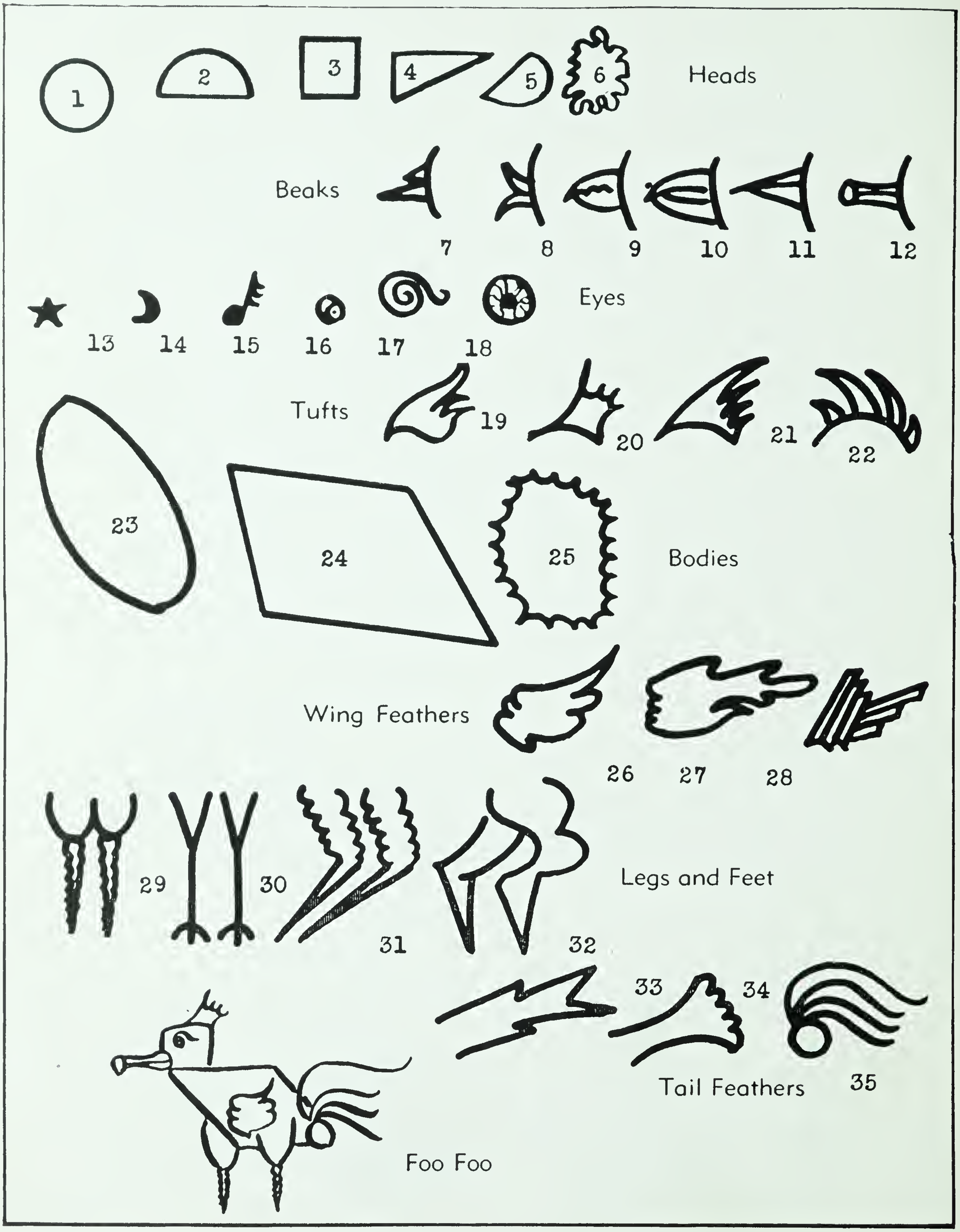
PATTERN DISTRIBUTION

Since it has been decided that pattern should be associated with the article upon which it is to be placed, no attempt will be made at this point to discuss the various methods of distribution for design units. They will be dealt with whenever the need arises. See Textiles and Woolcraft for the checker board, spot, half drop, and counterchange methods; Papercraft Lampshades for borders; Woodcraft Room Signs and Trays for single decorative units.

SCRAP BOOK

A visit to the offices of any designer, commercial, industrial, graphic, etc., would reveal his dependence upon a library — "morgue", as one person called it. There, under classified sections, are filed pictures, illustrations, lettering styles, layouts, etc., readily available when needed. In theory, the designer might be expected to go to the actual animal, place, or thing, study it intently, and then adapt his impressions to his material. In practice, however, this is not possible. Ready reference to books, pictures, etc., will help clarify any hazy impressions he may have. The references are never copied, rarely imitated, but used only as reference. It is for this reason that the student should early in the year start a scrap book that should be available at all times for reference. The outline given below has proven satisfactory.

1. Architecture
    Buildings—national types
        —historical periods within any one nation
    Interior decoration—furniture—historical periods; ornament—vases, pictures, figures, etc.; wall coverings—paper, wood, tapestry; lighting—windows, fixtures
    Exteriors—gardens
    House plans
2. Costume
    National types; historic periods; development of individual units
3. Pattern
    Natural; geometric; conventional; abstract; unit; border; all-over patterns
4. Illustration
    Literary; historic; commercial (ads.)
5. Lettering
    Page layout
6. Printing
    Various kinds and sizes of type
7. Photographs
    Etchings, lithographs, linocuts, air brush drawings


1
2
3
4
5
6
Heads
Beaks
7
8
9
10
11
12
13
14
15
16
17
18
Eyes
Tufts
19
20
21
22
23
24
25
Bodies
Wing Feathers
26
27
28
29
30
31
32
Legs and Feet
33
34
35
Tail Feathers
Foo Foo

8. Works of Art
   Paintings; sculpture; stone relief; ceramics; metal work
9. Art in the News

QUESTIONS

1. How would you define the word "design"?
2. Distinguish between decorative and structural design.
3. By reference to nature show that there is a definite relationship between form and use.
4. How many considerations do you know which influence design?

ENRICHMENT ACTIVITIES

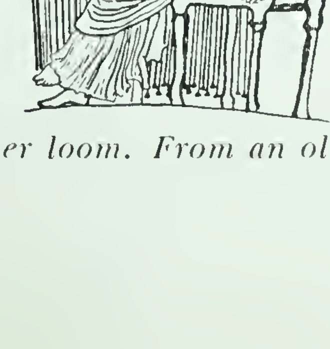
1. Make a list of the people in your community in whose work structural or decorative design plays an important role.
2. Bring to class pictures of things which you consider to be badly designed. Make a portfolio of ugliness.
3. Collect pictures of motor cars, stoves, telephones, etc., to illustrate that during the last twenty-five years the shape of each has become simpler and more compact without interfering with the efficiency or usefulness.
4. Make a folder to include pictures and information to show the change of design in road building. The title of the folder might be "From dirt path to clover-leaf".

TEXTILES AND WOOLCRAFT

INTRODUCTION

Much of the history of civilized man can be learned from the history of textiles. It is possible to learn a great deal about the social, political, and economic life of a people through the textiles that were worn and used in any particular age.

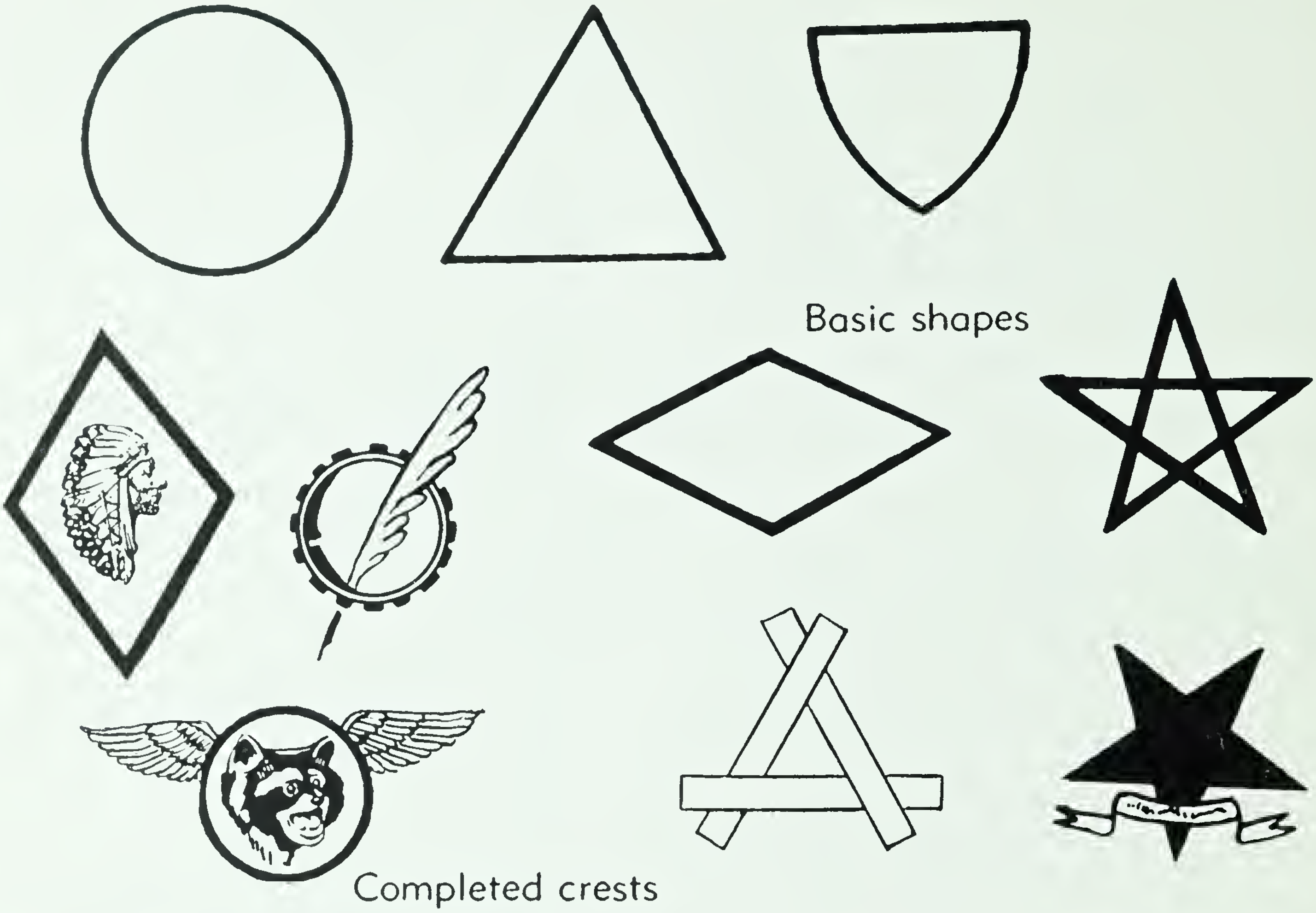
The beginning of fabric-making is lost in antiquity. There are no definite records to determine when this beginning was made, apart from drawings and paintings in ancient Egyptian tombs and on Greek pottery. Consult your Encyclopaedia for a more detailed account of this basic human craft.


Penelope at her loom. From an old Greek vase.

GOOFUS BIRD

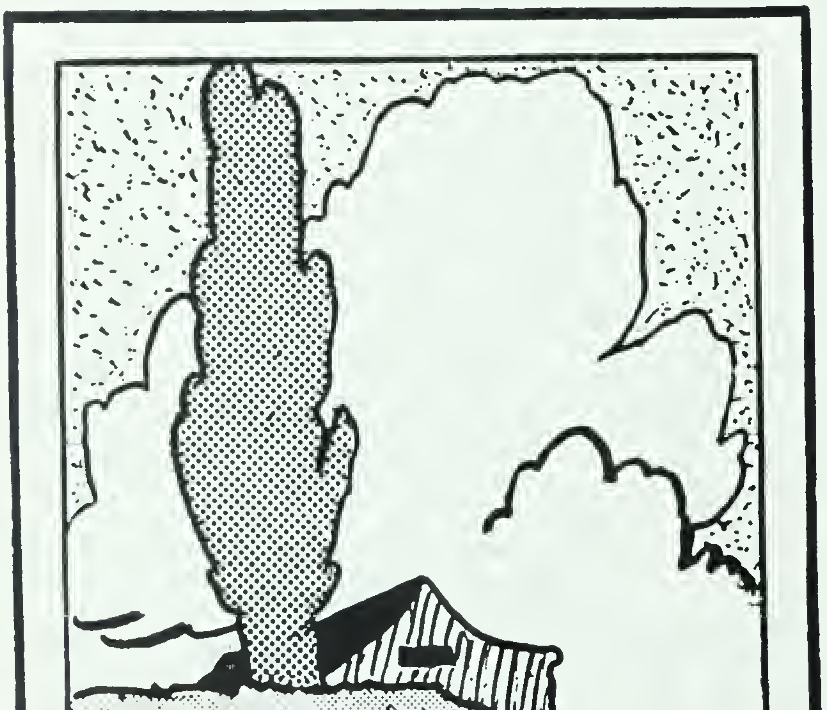
Materials required—variously coloured cloth scraps and remnants, library paste, cardboard, brushes, imagination!

1. Make a list of the various parts of the bird. The blackboard is an ideal place for such a list.
2. Get members of the class first to suggest, and then come to the blackboard, or draw at their seats "goofy" shapes for each part. See diagrams for suggestions. Don't copy any of the forms shown in the diagrams. Invent forms of your own, numbering each part. Prove that you have a vivid imagination!
3. Imagine that in the year 5000 A.D. a mysterious disease destroyed all the bird life on the earth. You are scientist-designers called together to invent new families of birds. You can do that by choosing one number from each section of the list and combining the forms represented by the numbers into a bird form.
4. When you are satisfied with your Goofus Bird, enlarge it to fill a 4″ x 6″ space.
5. Cut out pieces of cloth to cover the various parts of the bird. Should your neighbour have a scrap of cloth whose colour, stripe, or texture would make your bird look more interesting or unusual, then try to exchange some scrap of yours for it.
6. Another way to achieve interesting results is to place two different types or colours of materials on top of one another.
7. Paste the completed bird on a piece of cardboard.
8. Give the new bird a name.
9. Put all the birds up on exhibition and have the class vote on which is the most fantastic form.

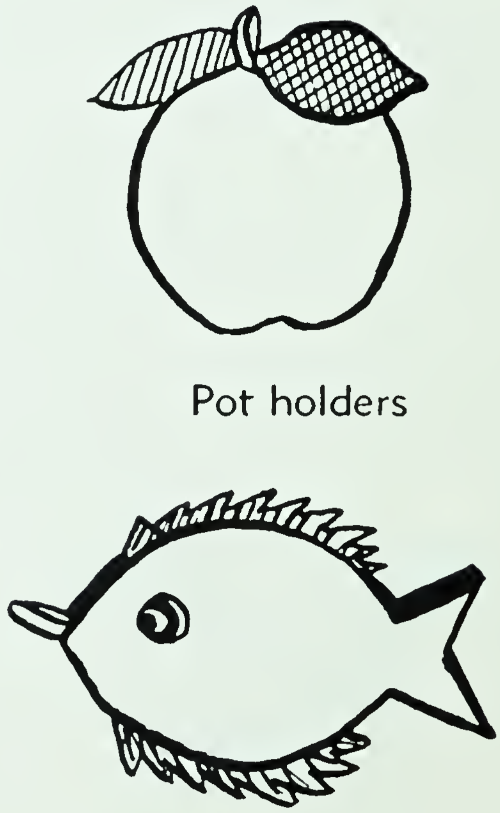


Basic shapes

Completed crests



Felt mosaic



Pot holders

FELT CRESTS

Materials required—felt, rubber cement, scissors, cardboard, crayons.

1. Determine the colours to be used: the school colours make a suitable guide.
2. Have each member of the class make a shape which he considers suitable. Then one is chosen by a majority vote. The shapes given in the illustrations are but suggestions and should not, if possible, be used.
3. Make cardboard templates of the selected shape, and have each student make at least four outlines of this template on an empty page.
4. The problem is to use both lettering and a decorative unit within the outline to make a suitable crest. The students should be advised to make all letters in block form, as it is nearly impossible to cut felt in pencil-line widths.
5. In order to make the design of the crest effective, keep the lettering down to a minimum, and the pattern bold. Use crayons to indicate the colours to be used in each case.
6. Have the class elect a committee to review the completed designs and choose the best three. Then all the members of the class will select by vote the one design that is to be made.
7. Since this is a co-operative enterprise, all of the pupils should have some part in the assembly of the crests. One group should be responsible for cutting out the background shapes; another for the decorative pattern; a third for the lettering; and, finally, a group to cement the various parts into position.

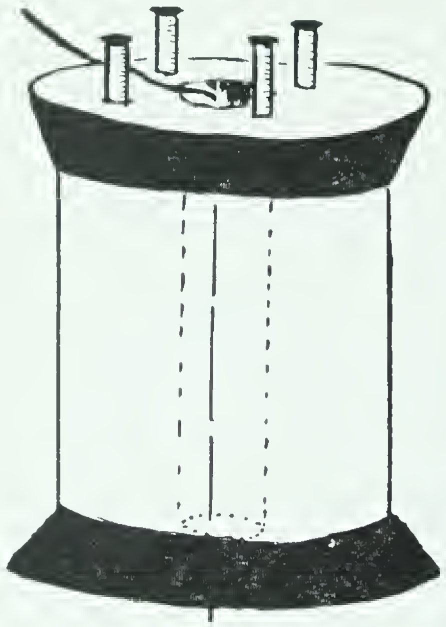
NOVELTY FELT POT HOLDERS

Materials required—felt squares at least 7″ x 7″, felt scraps, rubber cement, needle, thread, cotton batting (pinking shears, if available, may be used to make decorative edges.)

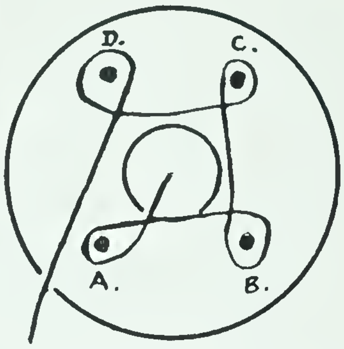
1. Plan your pot holder to include these essential characteristics: (a) it must be large enough to cover the palm of the hand; (b) it must be padded to protect the hand; (c) it must have a hanger that is an essential part of the design; and (d) it should be attractive.
2. Make a paper plan of the pot holder. In addition to those illustrated, holders may be made to resemble other objects. Be sure to keep the outline simple.
3. When satisfied with the design, make a cardboard template. Outline the template on the felt. Fasten two pieces together and use a sharp pair of scissors to cut the outline shape.
4. Apply the decorative units that are to be sewn or cemented.
5. Sew around object leaving opening to insert the batting or padding, and then complete sewing.

FELT MOSAICS

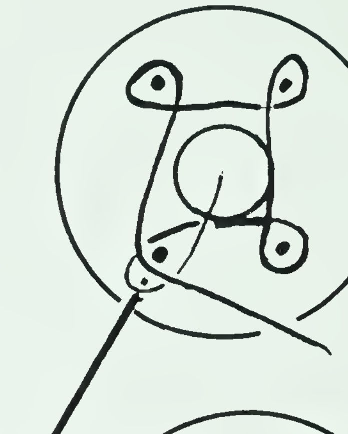
1. Secure or make a drawing that has an interesting outline and is constructed by means of simple masses or large areas of colour. The illustrations in most children's story books are good examples of this kind of treatment.
2. Cut out the different parts of the drawing and pin them to pieces of felt of various colours.
3. Use the cut-out portion of the drawing as a template for cutting out the felt.
4. Assemble the felt portions into a unit: make corrections where necessary to insure a better fit.
5. Assemble and cement the felt pieces into position on a background of felt of a solid contrasting colour. This, when backed by stiff cardboard, may be framed to make an attractive picture.
6. Felt may be used in this way to make greeting cards that are novel, attractive, and inexpensive.



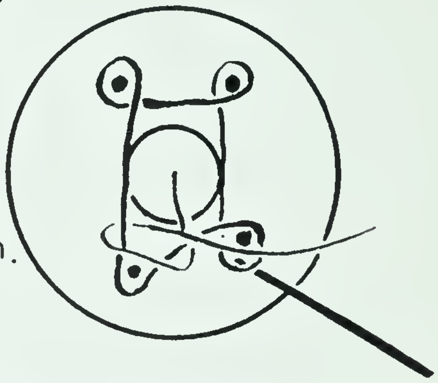
Spool ready for knitting.



Looping the yarn about the brads.



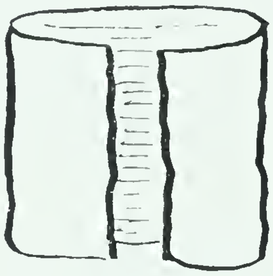
Lifting the outer loop to the inside.



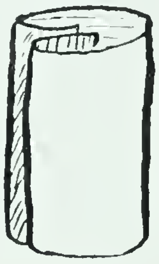
Completed operation.

BRAIDING

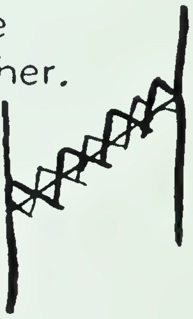
Strip of cloth.



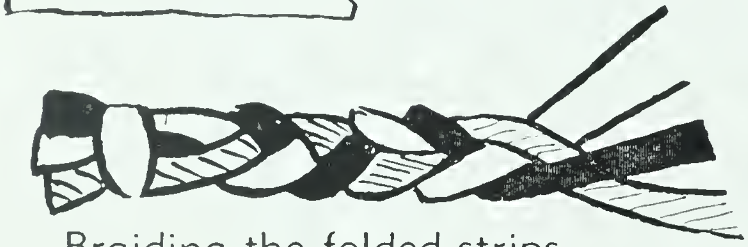
First fold



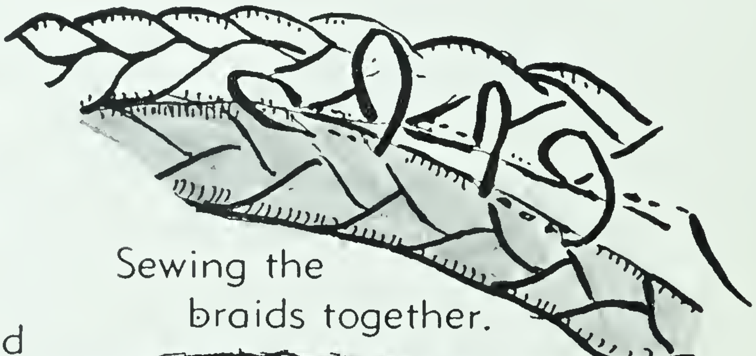
Second fold



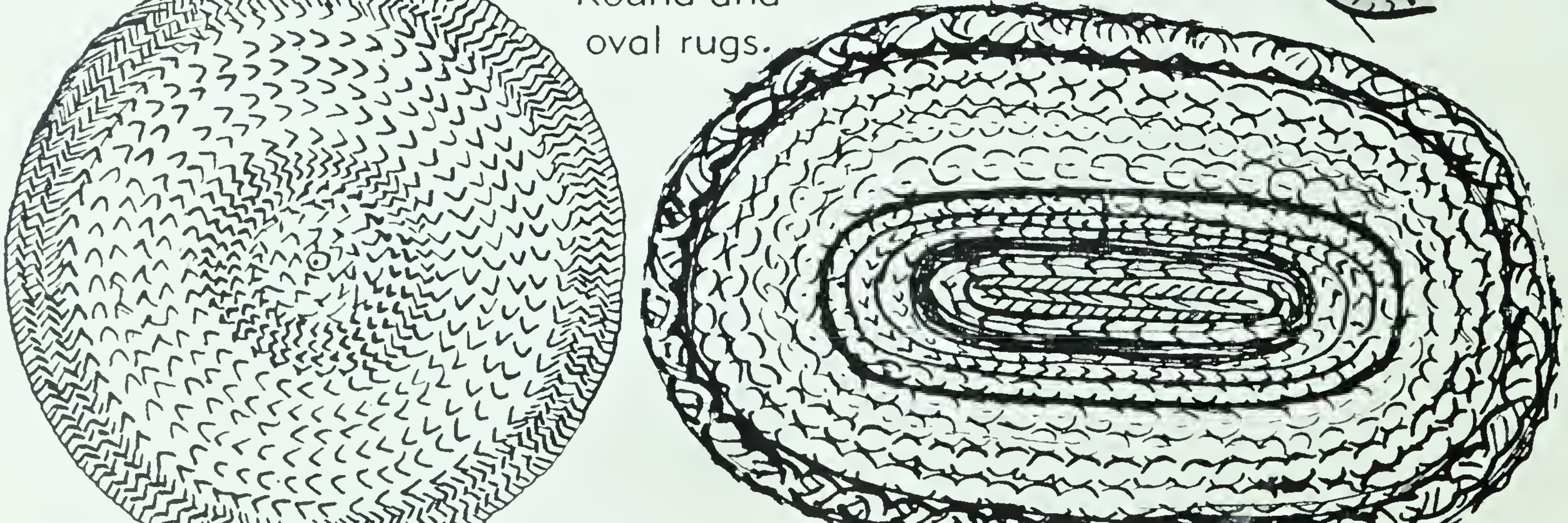
Sewing the ends together.



Braiding the folded strips.



Sewing the braids together.



Round and oval rugs.

Braided Mats from Discarded Materials

1. There are two methods of making the strands that may be used for braiding (a) making a coil by means of spool knitting; (b) sewing strips of cloth together.

Spool Knitting

Materials required—large empty spool, four brads, hammer, yarn or string, blunt needle, or compass point, etc.

1. Nail brads around the hole of the spool so that about ½″ projects above the wood. See diagram.
2. Pass one end of the yarn through the hole in the spool, and then loop a part of the remainder of the yarn around the brads A, B, C and D. See diagram.
3. When the yarn passes behind A again, slide the needle under the lower loop, and lift it over the upper thread and the brad A so that now the lower loop is inside, and not outside of A. See diagram.
4. Pass yarn behind B and repeat as above. Continue for C and D.
5. Remember to keep that part of the yarn which passes through the spool pulled taut.
6. To add a new length, or colour, tie the end of the new piece of yarn to that which is being used, before lifting it over the brads.

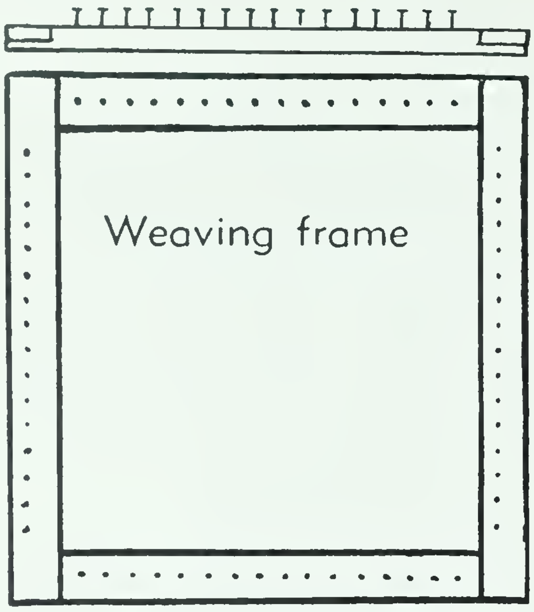
Making the Braiding Strips

Materials required—Any washable material may be used: cotton and wool should not be combined in the same rug since they shrink unevenly. Scissors, pressing iron, needle, linen thread.

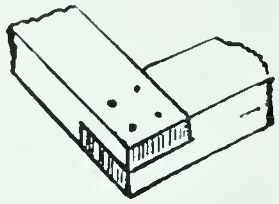
1. Cut the material into strips 3″ wide. The ends should be cut diagonally, overlapped, and firmly sewn together.
2. Fold in the raw edges: iron or baste into position. Fold down the centre, and then iron the folded strips to flatten them. This gives four thicknesses. See diagram. Wrap each folded and ironed strand around a piece of heavy cardboard to keep it smooth, and to keep the edge along the fold in place.
3. Sew the ends of three folded strands together. Attach this sewn end to something solid, so that the braiding will be firm and taut.
4. In braiding, always place the outer strand over the centre one.

   1 over 2; 3 over 1—3 is in the centre.
   2 over 3; 1 over 2—1 is in the centre.
   3 over 1; 2 over 3—2 is in the centre.
   See diagram.
5. When about 3″ from the end of a strand, unfold the strand and sew new strips into place.
6. Decide upon the final shape of the mat. For a round mat, make a spiral centre of four rows. Unless the mat is to be of one colour, taper off each colour instead of continuing around in a spiral effect. Be sure to have the joinings come at different places so that they will not be detected.
7. To sew the mat, coil and pin the braid into position and sew on the wrong side. Take a stitch first in one coil, and then in the other. See diagram.
8. Lay the mat down on the floor from time to time during its construction to see that it is keeping its form, and also that it is smooth and flat. Sew the strand ends of the last row of braid down as flat as possible on the wrong side of the mat.
9. Oval mats are made just like the round mats except that instead of beginning with a spiral coil, the centre is made by doubling the braid, and sewing the sections parallel to one another for several inches; then continue to sew and coil as for the round mat.

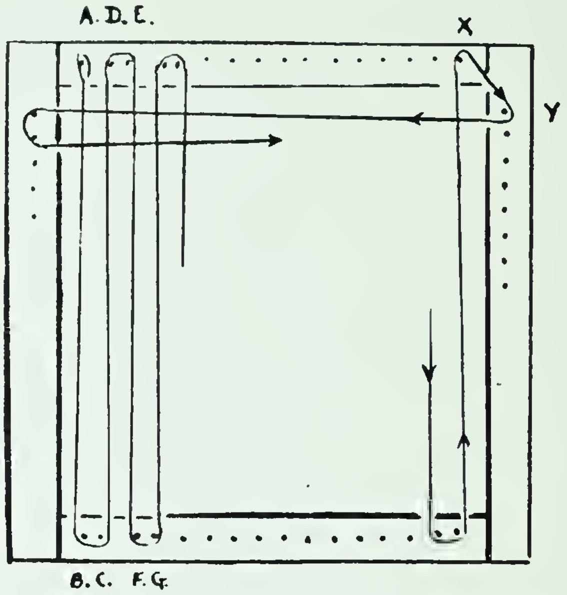
Braided rug making might prompt the student to investigate another method of rug making at which Canadians are particularly adept. To learn about the history and technique of Hooked Rugs, refer to the well illustrated article in the May 1943 issue of *The Canadian Geographical Journal* — "Hooked Rugs in Canada"—by Ramsay Traquair.



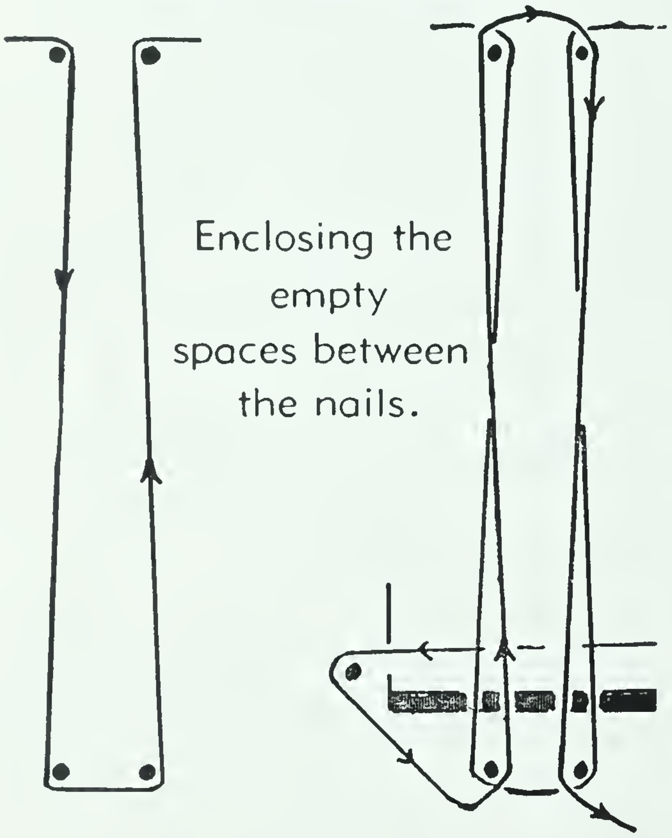
Weaving frame



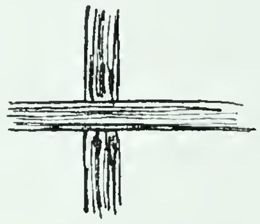
How to get strong frame corners



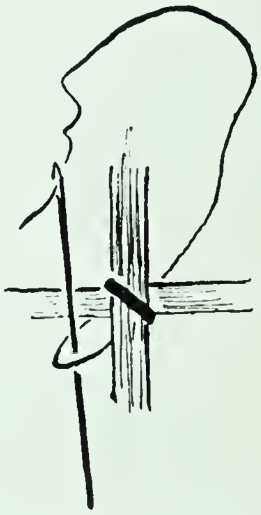
Stringing the frame. Note corner treatment.



Enclosing the empty spaces between the nails.

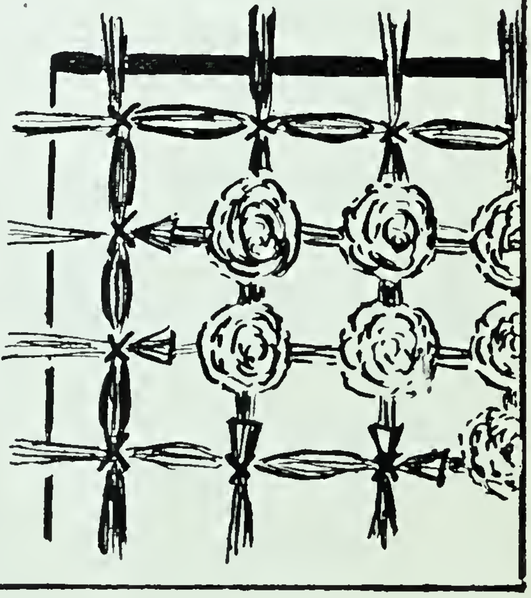


The intersection

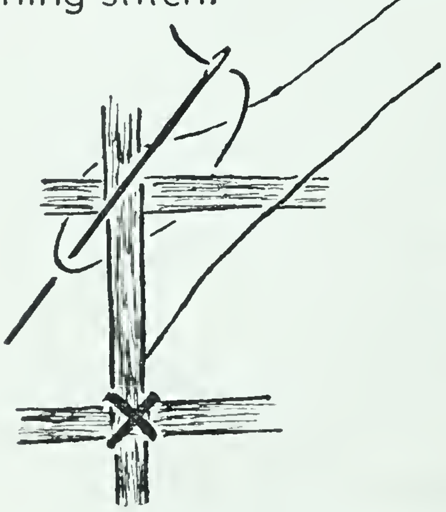


First tie.

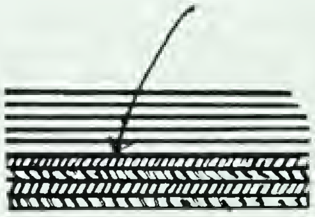
Cut strands showing the formation of the pom-poms.



Running stitch.



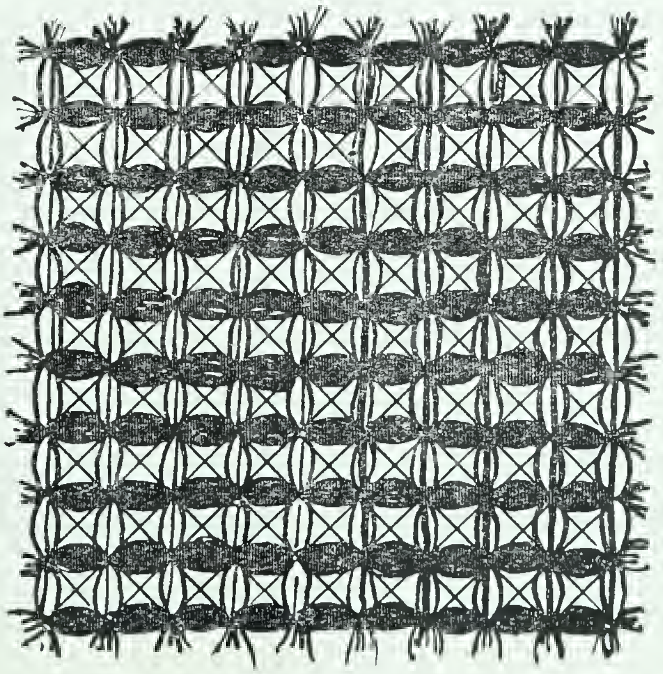
Guide in cutting strands.

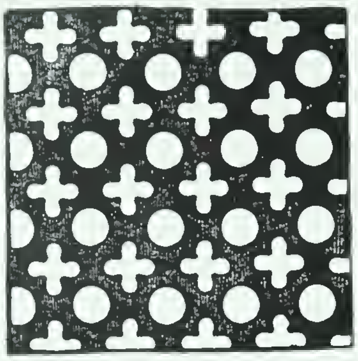


Waffle Weaving—Cushion Cover

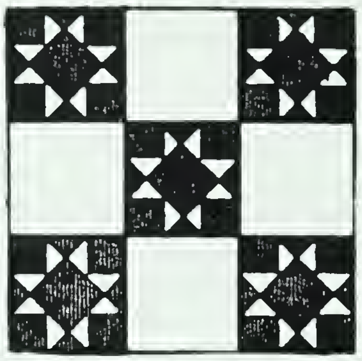
Materials required—weaving frame, four balls of wool, linen thread, needle, collender, sharp knife or scissors.

1. Make frame as shown in the diagram.
2. Attach end of the wool that is to be used as the background colour at A.
3. To thread frame, stretch the wool across the frame so that it passes around B and C and then across to D. The wool is then stretched around D and E before it is drawn across the open frame to be threaded about F and G. Continue to thread frame until X is reached. Note that at the corners, the wool passes around X and Y and then is drawn at right angles across the strands of wool that are already in position. See diagram.
4. When the last nail before the corner is reached, the strand is drawn around the end nail B of the adjacent side and is stretched at right angles to the horizontal threads, across the frame to A.
5. At this point the wool will enclose the empty space between A and D, by passing around D and across the frame to enclose space C—F. Continue to thread frame so that each of the empty space left by the first threading is covered by the third threading. See diagram.
6. To check the accuracy of the weaving see that strands of the third and following theadings are directly above the strand below.
7. As soon as one ball of wool is ended, tie the end portion of the strand to the end portion of a new ball of wool. Continue to thread until all four balls have been used. Tie end to the nearest nail. See diagram.
8. Tie intersections tightly with linen thread. Keep all knots on the under side. See diagram.
9. When *all* the intersections have been tied, cut the strands exactly halfway between the tied intersections. Cut *down but not through* the background strands.
10. Cut the strands at the nails to form the fringe.
11. Some wools may require steaming before the pom-poms, that should result from the cutting, are formed. Placing cushion cover in a collender over a pot of boiling water gives quicker results than holding the cushion cover over the mouth of a steaming kettle.
12. To make a place mat, substitute wool string for yarn and use a smaller frame. The intersections are tied with wool string (as outlined above) and are left uncut.

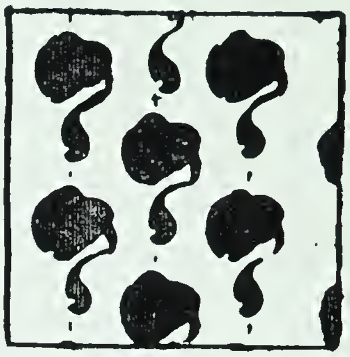




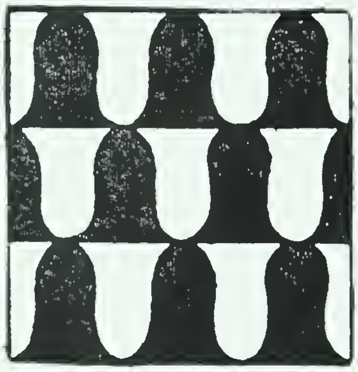
Spot



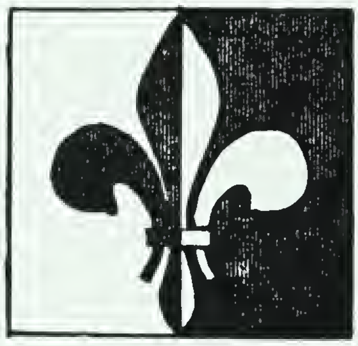
Checker board



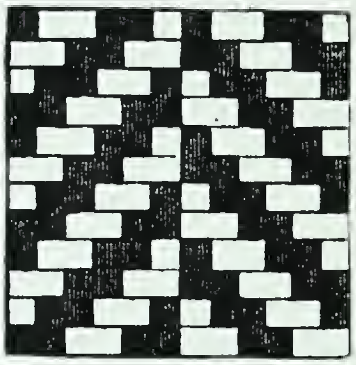
Half-drop



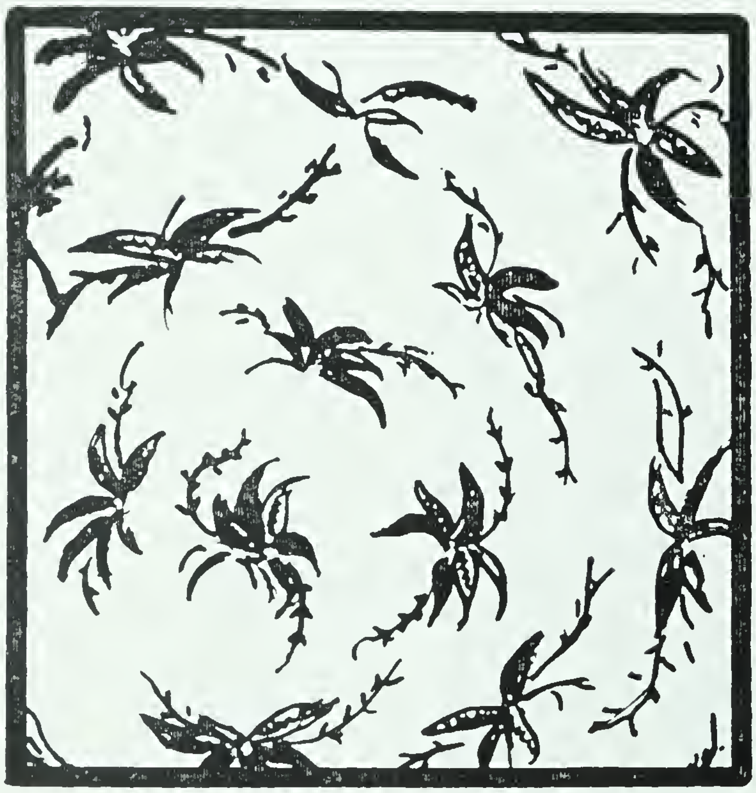
Counterchange



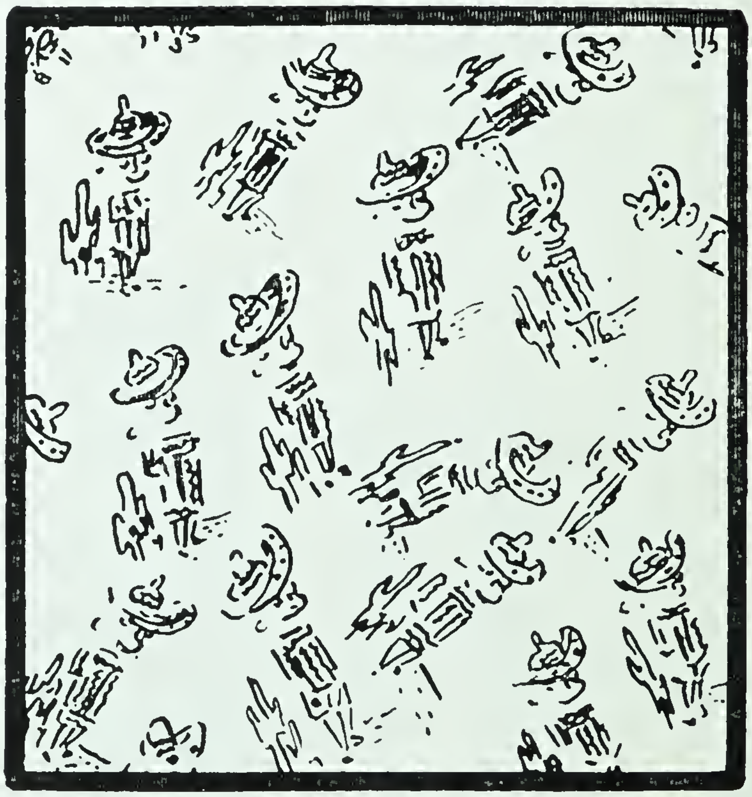
Interchange



Interchange



Pattern distribution a rhythmic line—the spiral



Haphazard distribution of pattern

All Over Pattern

An all-over pattern, as the term implies, fills or covers the space which confines it. The shape of the confining space—square, rectangle, triangle, circle, etc.—determines the way in which the individual units are repeated.

The common ways in which units are distributed within a square or rectangular shape are (1) spot, (2) checker board, (3) drop repeat. The spot repeat has the least amount of movement, the pattern units being placed either within the divisions or line intersections. This type of pattern is used extensively on wallpaper, curtains, and bedspreads. The checker board type of distribution may lose some of its monotony and be made interesting if the empty squares are filled with related units. The drop repeat may be given a moving quality, especially if the unit is so made that it provides an interesting pathway for the eye.

When the circle is used as the basic shape in decorative design, it is preferable to use curved lines, alone, or in combination with straight lines, rather than merely straight lines.

Collect examples to illustrate the all-over patterns discussed above.

Find illustrations showing how pattern units have been changed to fill specific spaces: trade marks are a good source.

Interchange is the turning over on its axis of a symmetrical pattern. It is a pattern type that was greatly used in heraldry. Ask the Librarian where heraldry symbols may be found. Consult these and record any other examples of the interchange type of pattern arrangement.

Counterchange pattern has the background covered entirely with masses of black and white of equal size. To arrive at counterchange, modify the basic divisions by a process of give and take so that as much space is restored to the division as is taken away. The space occupied by the pattern unit is equal to that of the unit itself.

On some modern textiles, chance distribution of the repeated pattern is used instead of the regular repetition. The impression the spectator gets when looking at a fabric decorated in this way, is that the unit has been printed on a number of cut-out cardboard shapes and thrown haphazardly over the surface.

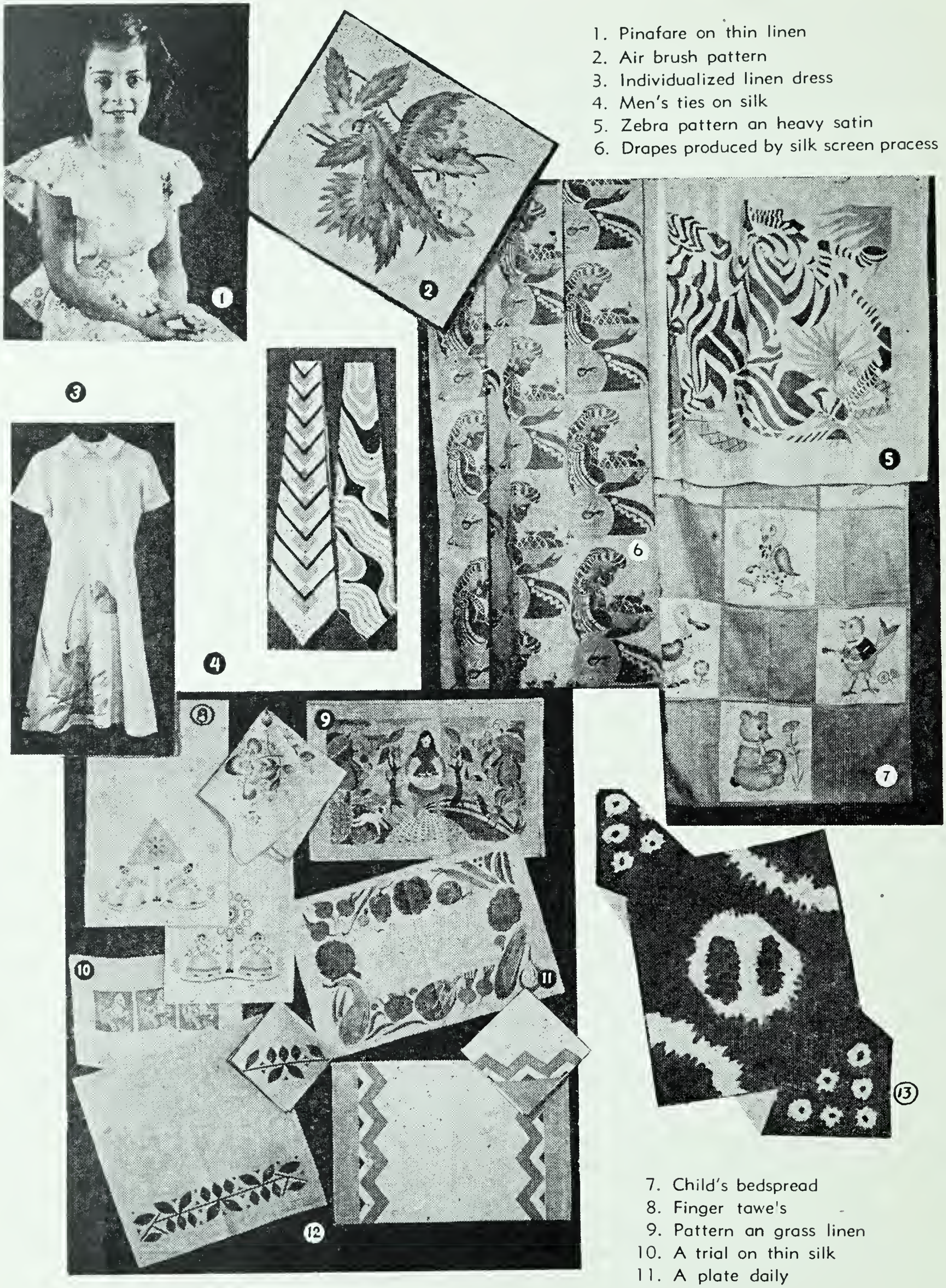
Another method of getting a distribution of units that is different is to draw a series of rhythmic lines, and, when satisfied that they have cut up the space in an interesting fashion, place the units along those lines. See diagram.

Consult the fashion magazines for textile examples illustrating this type of distribution.

Tie Dyeing a Kerchief

Materials required—various colours of vegetable dyes, fabric square 20″ to 24″ to a side, water, string, paraffin, buttons, pebbles.

1. To prepare fast dyes for cotton fabrics, a special chemical mixture known as a mordant must be added to the liquid dye. A successful mordant for school use—alum—may be prepared by completely dissolving 4 oz. of alum and 1 oz. of cream of tartar into 4½ gallons of soft water. The fabric to be mordanted must be washed and rinsed thoroughly prior to being placed in the mordant. While wet, the material is placed into the mordant bath which is heated slowly until it boils: boil for an hour, adding water to keep the amount of liquid constant. Allow to cool for twelve hours leaving the fabric in the mordant bath. Next day, wring out the material and wrap and store in a cool place. Mordanted material should be rinsed in water immediately before dyeing. It is interesting to discover that different mordants (potassium dichromate and ferrous sulphate) may each give a different colour to the same dye.



1. Pinafare on thin linen
2. Air brush pattern
3. Individualized linen dress
4. Men's ties on silk
5. Zebra pattern an heavy satin
6. Drapes produced by silk screen pracess

7. Child's bedspread
8. Finger tawe's
9. Pattern an grass linen
10. A trial on thin silk
11. A plate daily
12. Luncheon set
13. Sample of tie dyeing

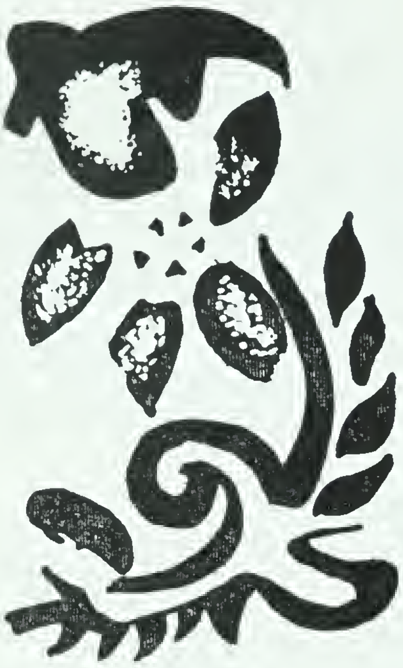
2. Fold cloth into square, rectangle, or triangle.
3. Melt the paraffin and coat the string with it. When cooled, wind the waxed string tightly around the portions that are to form the bands of decorative colour. To make the winding easier, pebbles, buttons, bolts, etc., are first placed in the cloth.
4. Immerse the tied cloth into the dye. The areas which have been covered by the string will not be affected by the dye. Remove the cloth from the dye and unwind the string. Rewind the cloth so that now the dyed portions will be protected by the waxed string, and that the undyed portions might be dyed when the cloth is again dipped into a dye of another colour. When several colours of dye are being used, work from the lightest to the darkest.
5. When dyeing is complete, remove the strings and allow the fabric to dry at room temperature.

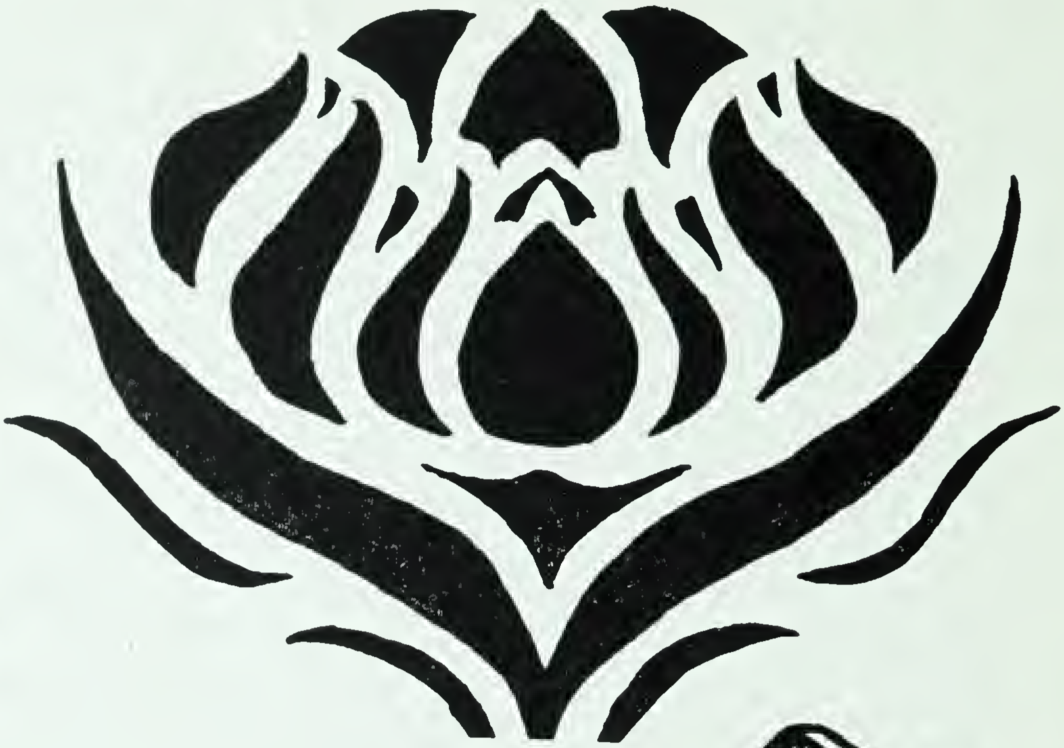
TEXTILE PAINTING

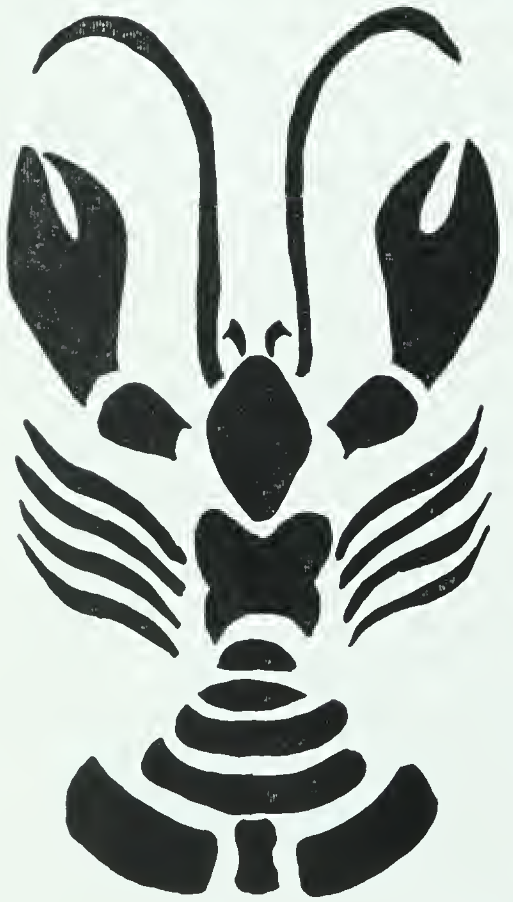
The craft of textile painting has been greatly simplified through the production of a textile painting medium manufactured by the American Crayon Company, Sandusky, Ohio. We have used these paints extensively in our classes and have found that they measure up to all claims made for them. The material and illustrations for this section have been supplied through the courtesy of the American Crayon Company.

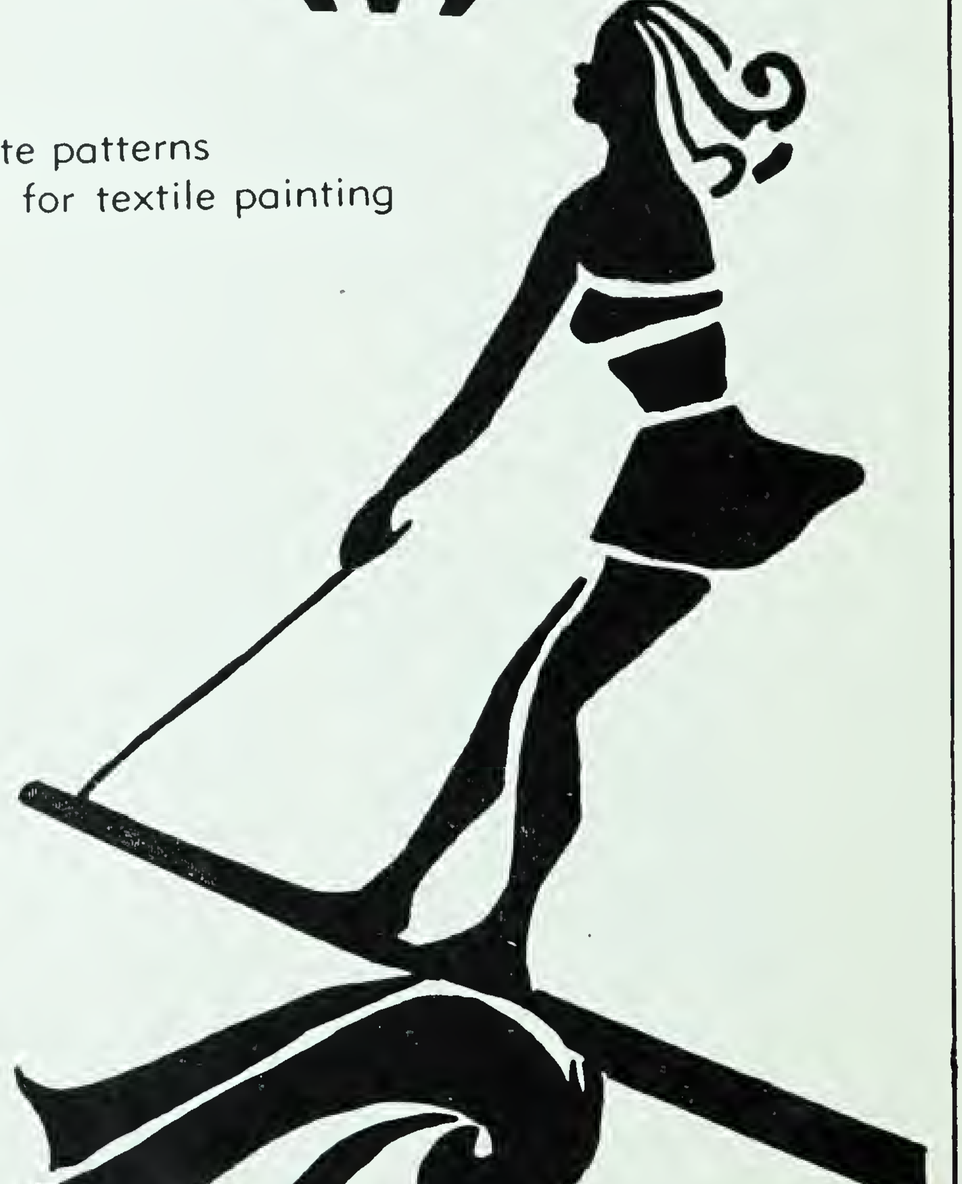
Materials required—Prang textile paints, stencil brushes, light coloured cloth, E-Z cut stencil paper, blotter, mixing dish, stencil cutter.

1. Wash the cloth to eliminate all size or filler. This is done by washing the fabric in warm soapy water, rinsing thoroughly, and then pressing.
2. To make a one colour stencil, fasten the stencil paper to the design with tape or thumb tacks. Trace the design with hard pencil: stay on the lines. Cut the stencil on the lines with a stencil cutter, sharp knife, or razor blade. All parts cut out will eventually be coloured.
3. If it is a design of more than one colour (a) make sure that one corner of each sheet of your stencil paper is a right angle; (b) fasten stencil paper to pattern with tape or thumb tacks; (c) outline right-angled corner on cloth. Always place the right-angled corner of additional stencil sheets into this outline. Trace design and then cut.
4. Trace, cut each colour on a separate piece of stencil paper.
5. When all stencils have been cut, place them together and hold them up to the light to be sure that the various parts of the pattern fall into place.
6. *Mixing Colours*— (a) *Stir* all colours and extendor *thoroughly* before using.
   (b) Don't hesitate to mix colour to obtain interesting effects.
   (c) To make a colour lighter, add white; to make a colour darker, add black (a little goes a long way).
   (d) To every colour *add* extendor to make the colours penetrate the fabric better.
   (e) Put colours around outside of mixing dish and extendor in centre.
   (f) Mix enough colour to complete the project.
7. *Application of Colour to Fabric.*
   (a) Always use a blotter under the fabric to absorb any excess colour.
   (b) Stretch and fasten fabric to working surface.
   (c) Use a different stencil brush for each colour (1) to insure clean brilliant results, and (2) to save time.
   (d) Dip stencil brush into colour and press it a few times in a vertical motion on a scrap cloth to remove excess colour.
   (e) The colour should be forced into the fabric by making the brush hit the stencil about a half inch from the opening, then sweep across the open-









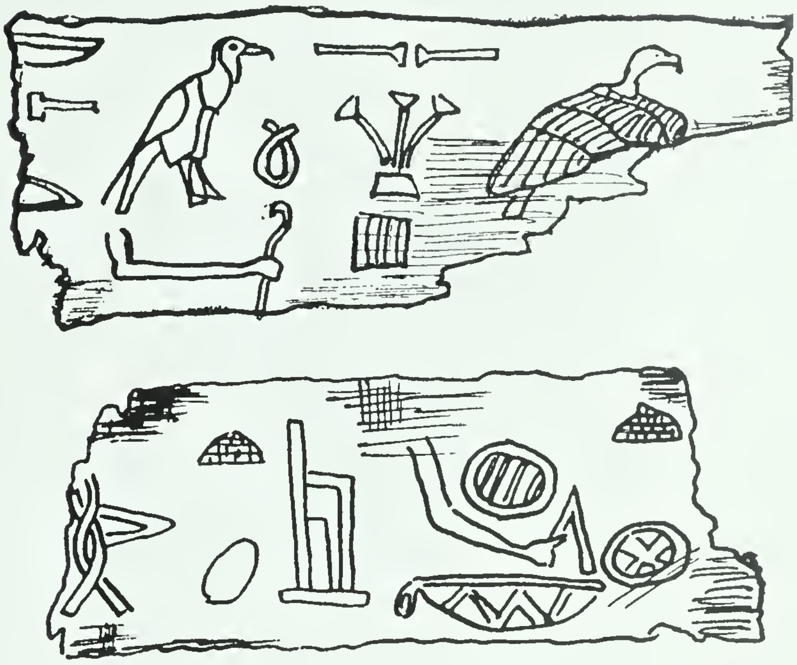
Silhouette patterns
suitable for textile painting

ing toward the centre. Be sure that the stencil is securely pressed to the fabric to eliminate feathering the edges of the design. Avoid piling up of colour. It is better to use several light applications than one heavy coating.

  (f) Finish the application of each colour before changing to another.
  (g) In large areas the brush is run around the outer edge of the space next to the stencil. Attractive results are then produced by grading the colour from the stencil edge inward toward the centre.
  (h) Artistic effects are produced by giving the outer edge of the stencilled area a second rim of related colour. If an area has been stencilled with Yellow-orange, then go around the outer edge of this area with a pure orange, or a greyed Red. Black tends to dull colours.
  (i) Small areas are stencilled more rapidly and thoroughly if the brush is held as vertically as possible and applied with a swinging circular motion.
  (j) Remember to clean stencils thoroughly before using them again.

8. Allow the finished work to dry thoroughly. A full day gives the best results.
9. When dry, place a well dampened cloth over the *back* of the design and iron for at least one minute with a hot iron, 350° F. Rayon 200°-230° F. Dampening the pressing cloth in white vinegar helps to create greater fastness of colour.

It would be difficult to exhaust the possibilities of the Textile Paint. Towels, curtains, bedspreads, drapes, scarves, bridge sets, pennants, ties, aprons, smocks, place mats, bandanas, handkerchiefs, etc., are but a few of the things which lend themselves to this kind of decoration.



Linen mummy cloths
Hieroglyphics painted yellow and outlined with black

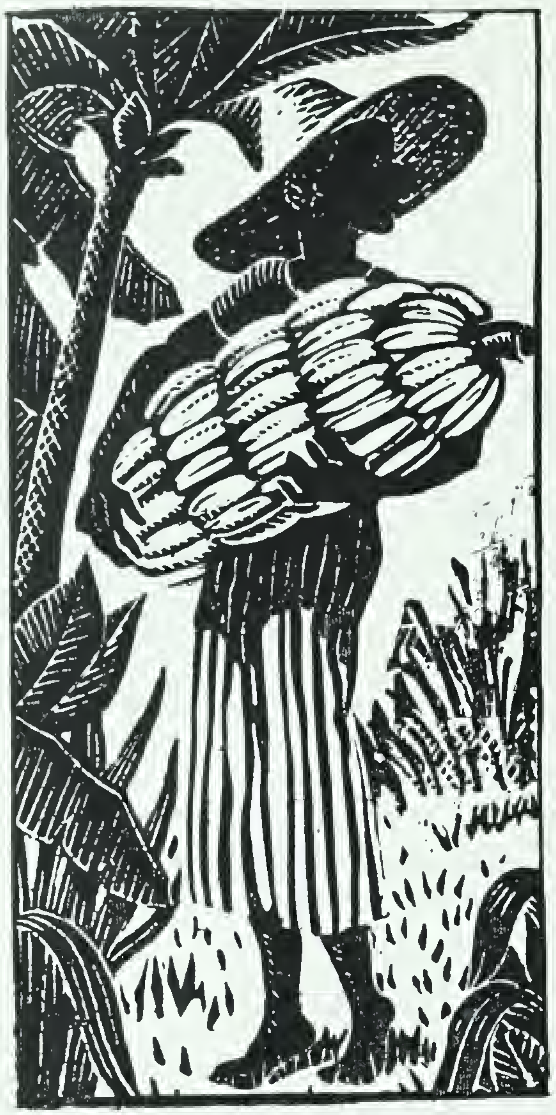
WOOLCRAFT AND TEXTILES

QUESTIONS

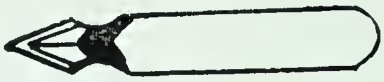
1. Define and explain each of these terms—appliqué, braiding, and stencilling.
2. Name the various kinds of all-over patterns used on textiles and distinguish between them.
3. Enumerate the precautions to take when using textile paints.

ENRICHMENT ACTIVITIES

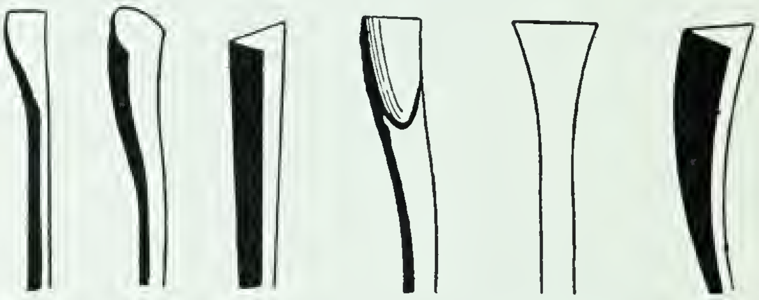
1. Consult a dictionary to find the origin of the following words—spinster, damask, cretonne, tweed.
2. Can you name any animals, other than the sheep, whose wool or hair is used in the manufacture of textiles?
3. How do wool, cotton, rayon, and silk differ in origin? Name the country which is the greatest producer of each.
4. Consult *Bartlett's Quotations* and make a list of the literary references to textiles which interest you most.



Wood cut.

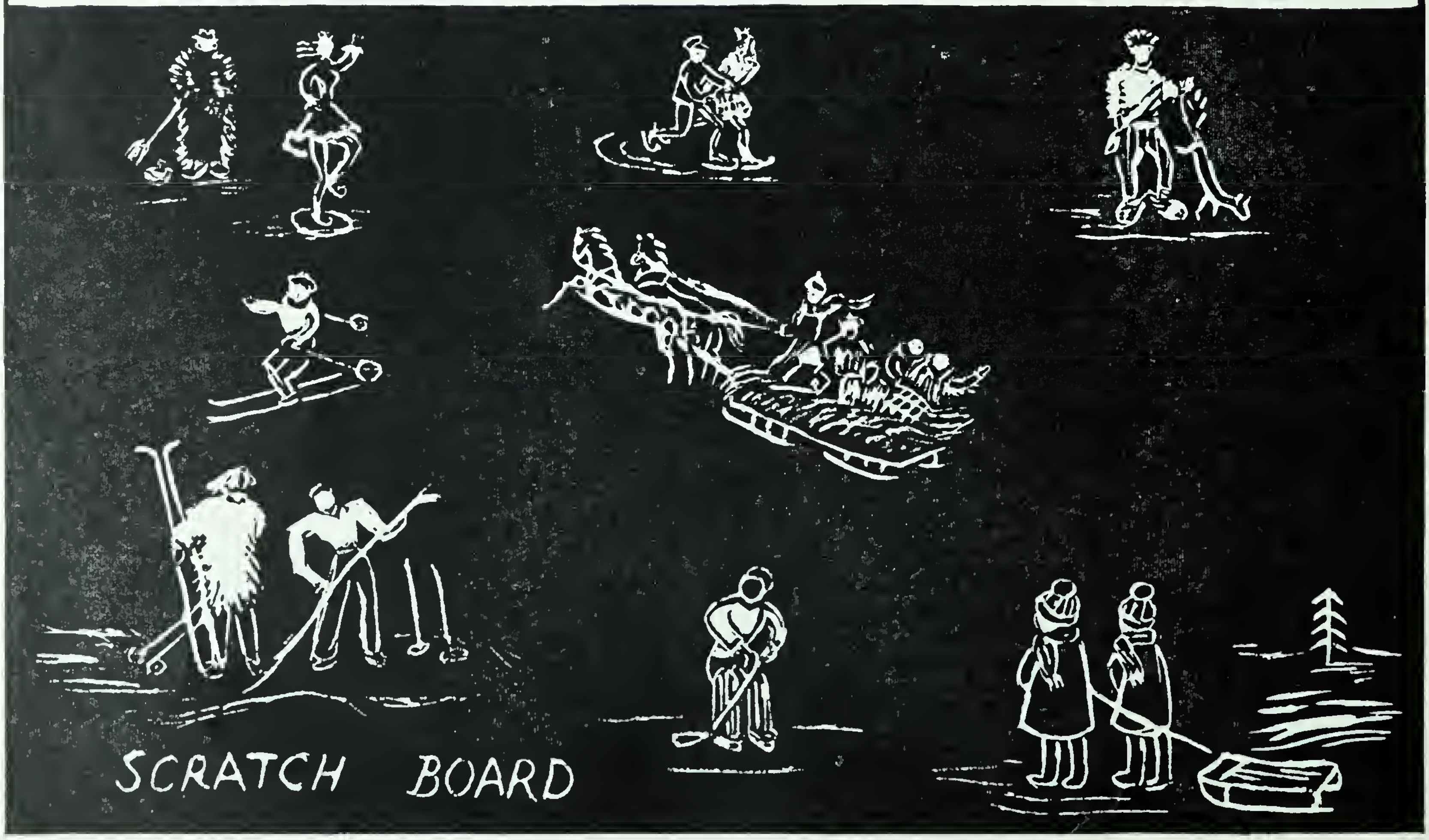


Scratch board nib.



Wood engraving chisels.

Scratch board drawing



SCRATCH BOARD DRAWING

This method can be introduced prior to the work in linoleum to get students familiar with the idea that the removal of a portion of the surface serves to decorate that surface.

To make scratch board, completely cover the surface of a large sheet of white ticket or Bristol board with a thick coating of paraffin, by rubbing the paraffin over the board.

Using a wide brush, paint a coating of india ink over the paraffin.

Use any sharp pointed instrument (old pen nib, ice pick, compass point, etc.) to draw directly upon the blackened surface. When the point travels over the surface it will remove not only the ink, but also the wax undercoating, leaving a white line. Use a pocket knife to remove large areas or for shading purposes. This medium may be aptly used to illustrate poems or scenes from English Literature.

LINOCRAFT

Introduction

The use of linoleum as an art material is of recent development. It is most generally used in block printing; as such it offers an opportunity for a complete printing-art experience that is within the means of everyone, the materials being both available and cheap.

The idea for the lino block came from the wood block which has had a long and interesting history. When printing stopped being a cheap way of reproducing hand writing and became an art, the wood carvers began to make illustrations to supplement the text. For two hundred years the woodcut played an important role in book production for both illustration and ornamentation. With the introduction of copper plates for engraving, the woodcut fell into disuse, only to be revived in the nineteenth century, largely due to the efforts of Thomas Bewick. It was in the 1860's that this form of illustration reached its peak. With the rapid growth of photographic printing methods, wood, as an illustrating material, again declined. Only within the last twenty years has this method of illustration been revived. It was during this period that linoleum blocks were substituted for wood blocks.

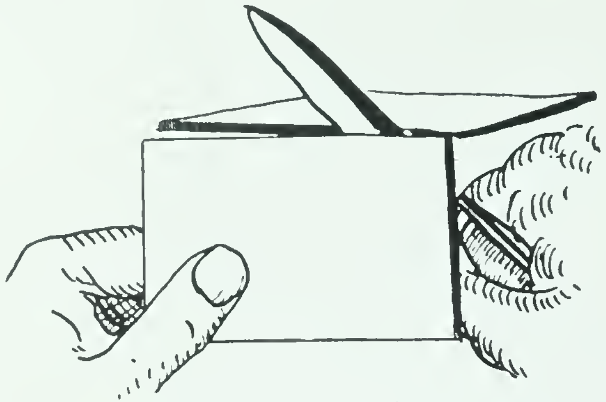
Seasonal Greeting Cards

Materials required—1/8″ to 1/4″ battleship linoleum; the cheapest way to buy this is to get large left-overs from house furnishing departments of departmental stores, and then cut the linoleum to sizes suitable for class work. In cutting linoleum, hold the blade of the knife against a straight edge and press below the surface while cutting. When bent, the linoleum will break along the cut line. The burlap back can then be cut easily. Straight edge, linotools, brayers, water printing inks, sheet of glass for each colour used, cleaning cloths, newspaper, paper for prints, carbon paper, pins, India ink.

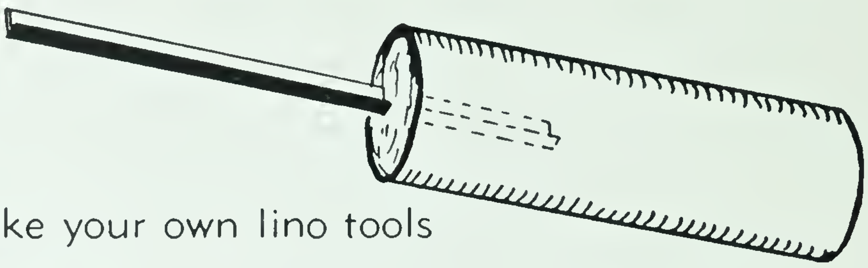
Decorative Pattern—The best results come from careful planning of the spaces. Large open spaces are difficult to handle during the printing. A pattern that has its masses reaching or running into the border usually gives good results. Unless special effects are wanted, plan to have approximately the same area left to be printed as that left unprinted. Aim to have large areas of flat masses with few lines. Detail should be suggested in outline, rather than be expressed in difficult pattern.

Transferring the Pattern to the Block—

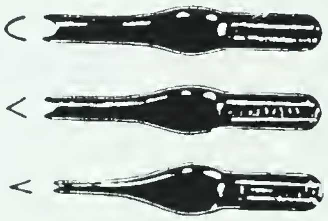
1. The pattern to be cut is first drawn on paper.
2. Hold drawing up to light (against window) and trace the design on the opposite side.
3. With the reverse side uppermost, paint in with India ink those areas which are to be printed. If there is lettering on the print, check the shape and order of the individual letters by holding the reversed copy to a mirror; the letters in reflection should have their normal order.
4. Place the carbon, shiny surface down, between the paper (reversed side upper-



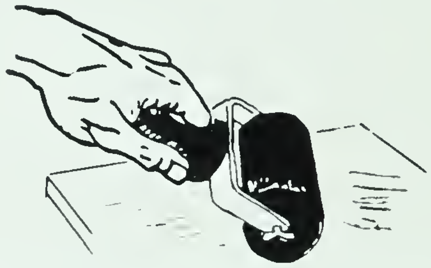
Cutting linoleum



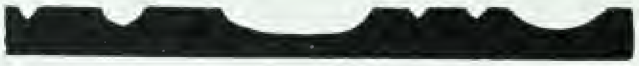
Make your own lino tools



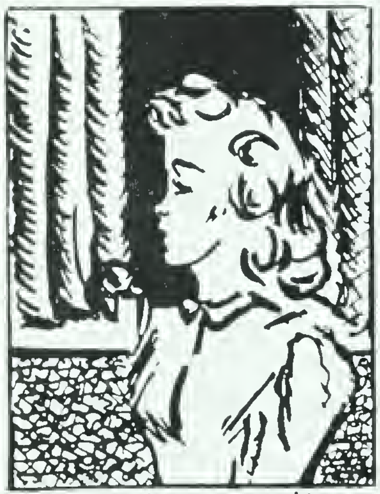
Lino nibs



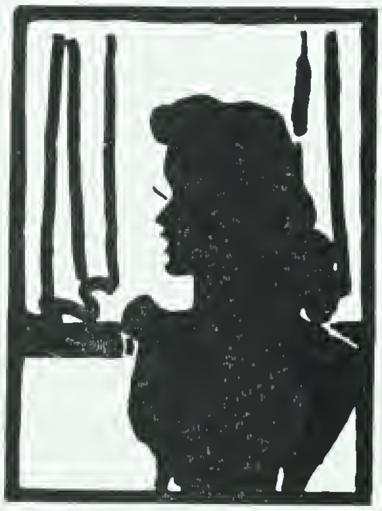
Use brayer to roll out a film of ink.



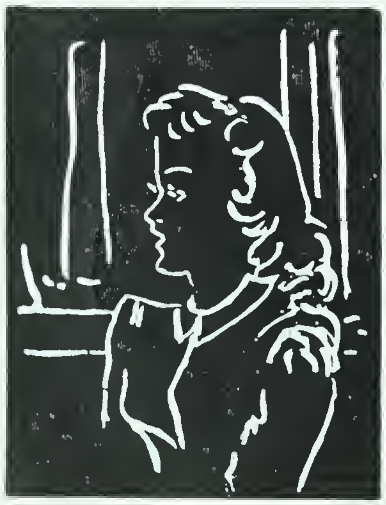
Cross section of linoleum block. When removing large areas, cut more deeply to prevent the ink collecting in the hollow.



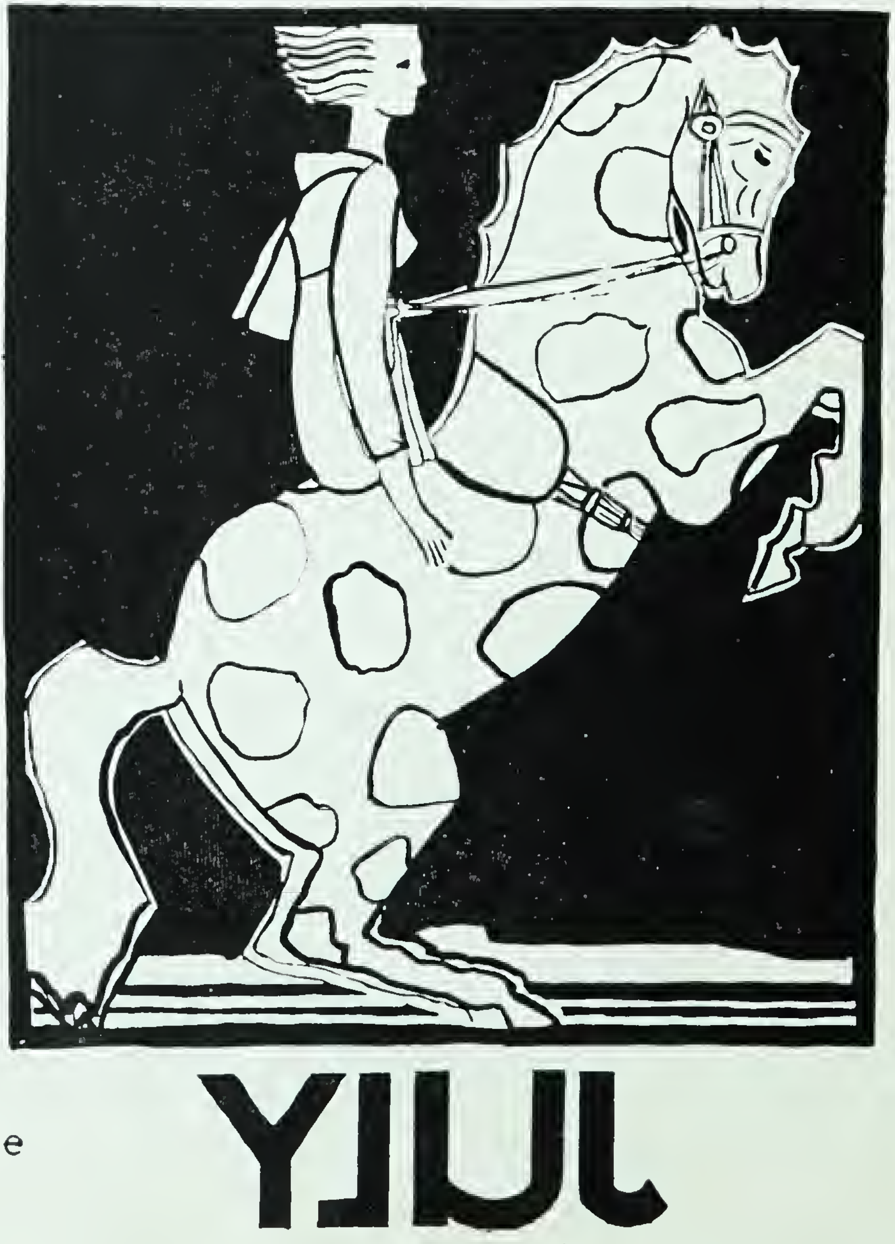
Use of engraving outline, and textures to arrive at an interesting pattern



Silhouette



Engraved line



Pattern for a lino block Note that lettering is in reverse.

most) and the lino block, which has been previously rubbed with fine sandpaper to remove the oil film and roughness. Secure the sheet to the linoleum by means of pins in spots where the finished surface will not be spoiled by pin holes.

5. Trace the pattern on to the block. Use the ruler for all straight lines. When the tracing is complete, remove the tracing and ink in those areas that are *not* to be cut out. Do not neglect to do this, because if only the carbon lines are left, handling of the lino block will tend to erase or smudge them.
6. Lino tools may be bought from dealers of school supplies, or can be made by the student from old pen nibs and umbrella ribs.
   (a) Cut broom handle into a number of 2½″ pieces.
   (b) Find the centre of the cut surface; place in vise and make a hole 1″ deep with ⅛″ drill.
   (c) File off 6″ from the rib of an old umbrella.
   (d) Drive this short piece of steel into the hole previously made in the broom handle piece.
   (e) Make several tools by hammering the free ends to produce a variety of shapes.
   (f) Sharpen the free ends of the steel to a knife edge by using a file and an oilstone.

Cutting—Practise using the tool on scraps. Remember that "clean cuts make clean prints", and "the edge tells the story". Avoid furry lines.

1. Various shaped tools will give different types of cuts. See diagram.
2. Any material cut away will show up in the colour of the paper used.
3. Outline the pattern with the smallest "v" tool. Always cut away from the pattern. Large open areas should be scooped out more deeply than smaller areas because the ink has more opportunity to collect in large spaces, and thus give the print a spotty appearance.
4. The background area may be made more interesting by using a variety of lines, by the direction and weight of lines, or by stippling procedures.
5. Brush block to remove particles. If this is neglected, the particles might be transferred from the block to the brayer or inking plate and impair the appearance of the final print. If chalk dust is dusted on the block and the relief areas are wiped clear with the palm of the hand, the effect of the finished print will be seen.

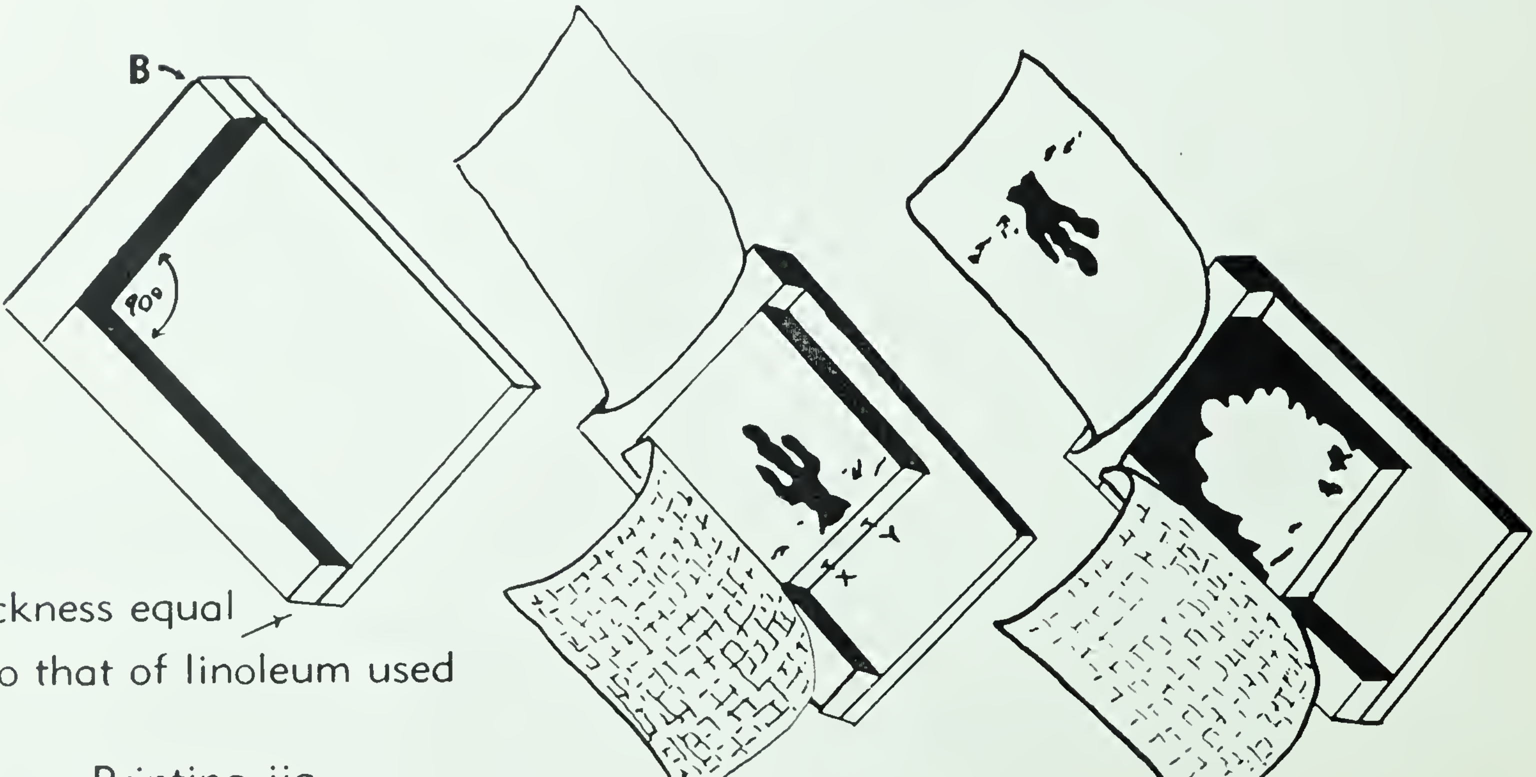
Inking the Block—Cover the surface where the inking is to be carried on with large sheets of newspaper. Have the paper that is to take the print cut and folded. This will save time and keep the prints clean.

1. Transfer about a teaspoon of the ink from the can to the glass plate. Use the brayer to roll out the ink into a *thin film.*
2. Roll the inked brayer over the lino block, making sure that all parts are equally covered with ink. Do not neglect the corners. Put the brayer back on the glass plate with the *handle resting on the table*: ink on the handle will invariably be transferred to the print and make it untidy.
3. Place trial sheet on the block. Unglazed papers—facial tissue—give the best results.
4. Rub beeswax over the paper to eliminate the friction caused by burnishing. With a light rotary movement (burnishing) rub the back of the paper with a heavy smooth surface until the whole of the pattern (do not neglect the corners) can be seen through the paper. The rubbing may take up to three minutes to be complete.

   Caution — Do not move the print while burnishing.
5. Peel the print from the block. If the first print is satisfactory, make as many prints as desired. The colour of the print may be changed by cleaning the block with water, and allowing it to dry. Then use a

Suggested sketches for a class calendar

Multi-coloured prints



Thickness equal to that of linoleum used

Printing jig

Printing the first block

Printing the second block

clean brayer and a clean glass plate for the new colour.

6. Should the block need correction, clean it with water, make the correction, and then repeat the inking and burnishing.

Cleaning Up—Never leave blocks, brayers, or glass plates covered with ink. Dried ink is difficult to remove. Clean up with water. Hang up the brayer.

A Class Calendar

In addition to the making of personal greeting cards or book plates, the students might engage in a group project—a class calendar. Let each student prepare a design unit that is characteristic of the month in which he was born. If there are more than three students born in any given month, while some months are not included, assign the extra students to do the design units for the missing months. All the design units should have the same outer dimensions. When the designs are completed, elect a committee to select the twelve most appropriate units. The chosen designs should be cut and printed by the students who made them; the other members of the class will cut out the background sheets, mount the prints, and assemble the calendars when completed.

"Local History" Project

"Our Town—A History in Block Print" might serve as the title for a group activity investigating interesting events in community history. The making of illustrative sketches with a view to use of the linoleum as the printing medium, together with the search for suitable historical material to express the spirit of the event selected, should prove a valuable method of correlating Social Studies with Art.

Multi-coloured Prints

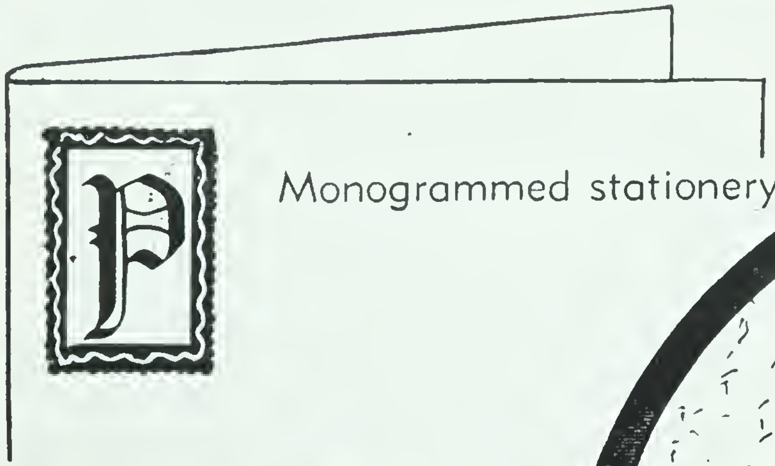
Materials required—same as for single-coloured prints, for every additional block introduced a new block is necessary. However, the use of coloured paper will eliminate one block. Printing guide, made as in diagram.

1. Fit corner of master block into corner D of printing guide.
2. Put thumb tack guards at X and Y. Any new block will have to fit between these points.
3. Square off paper along A and B. Attach the paper using thumb tacks.
4. Make a soft pencil rubbing of the pattern on the master block.
5. Fold the paper back; attach carbon paper to the vertical side of the printing guide.
6. Remove master block and replace with uncut block.
7. Trace the pattern down on the surface. Remove block. Cut out sections that correspond to the *raised* portions of the master block, allowing a narrow edge for overlapping.
8. Always print the light colours first. The key block should be the darkest colour and be printed last.

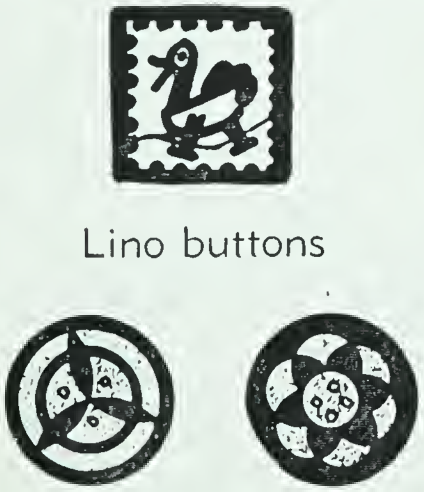
Book Plates

Book plates are labels pasted in a book to indicate ownership. They date back to a time when books were less plentiful than they are now. To own a book, then, was more than a sign of culture; it was an indication of wealth. Even at that time books had a tendency to stray from home. The presence of the book plate—usually on the inside cover—might have served to remind the borrower to return the book to its rightful owner.

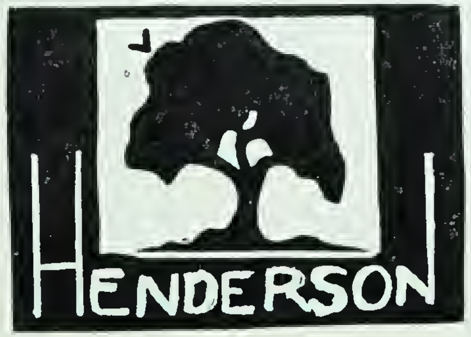
In the past the decorative design of the book plate was very ornamental; usually it contained a Coat of Arms. At present such designs have been replaced by simple units or symbolic patterns. Have each student get or design a unit that is personal in character. Some reference to his name, hobbies, interests, are usually appropriate. For example, Mary Hart could use a deer as the basis for her design on a book plate; a scout could use his scout badge; another boy, interested in science and mathematics might combine symbols from each into his design; still another might incorporate all his interests into a personal Coat of Arms.



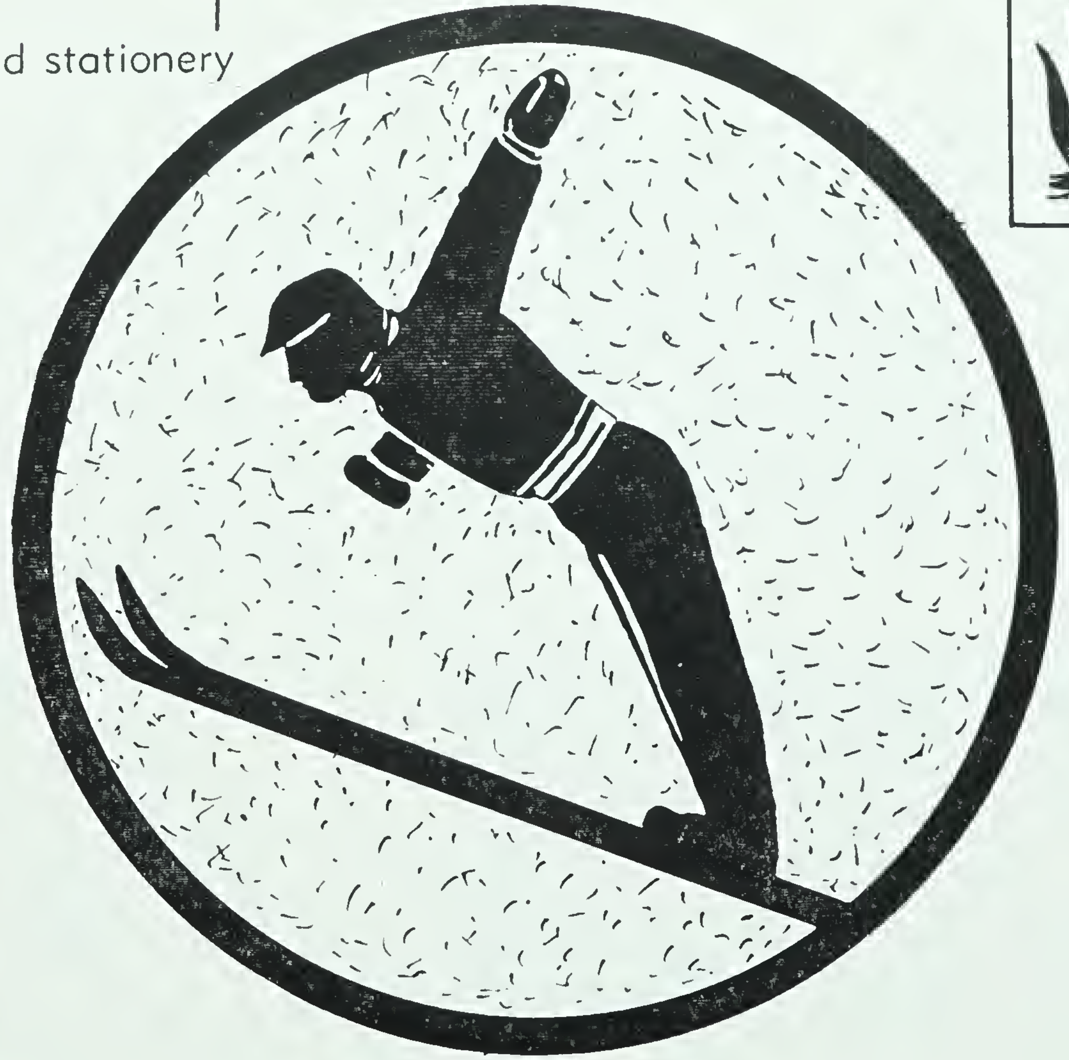
Monogrammed stationery



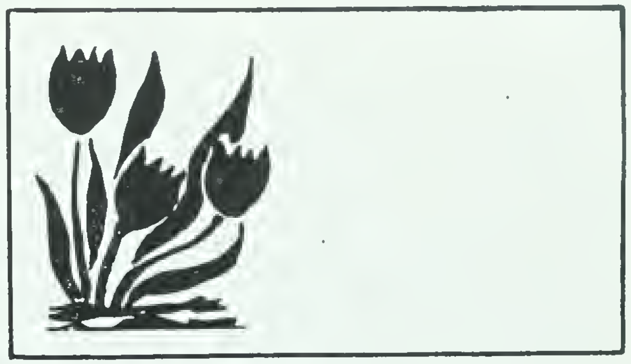
Lino buttons



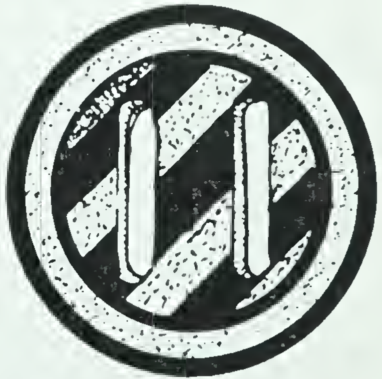
Book plates



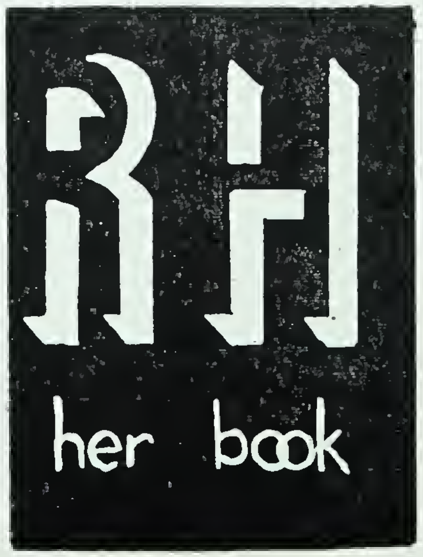
Lino plaque



Place cards



Lino buckle



Book plates

The usual expressions to denote ownership are *"Ex Libris"*, "His Book", or "Her Book". If the lettering is kept simple, the result will be effective.

Materials needed—same as for Seasonal Greeting Cards; lino blocks should be no larger than 4″ x 3″. Paste.

Paste the printed plate to the inside cover of *your* book by applying the paste *to the plate.* Smooth out wrinkles with a soft cloth. Allow to dry before closing the cover of the book.

MONOGRAMMED STATIONERY

One way to utilize the linoleum scraps is to make small lino blocks to print monograms on stationery. The method of cutting, inking, and printing is the same as outlined for greeting cards and book plates. Guard against making the monogram too large for the note paper. Remember that all letters must be made in reverse. The illustrations shown in the lettering section may give you some ideas for your own monogram.

THE CARVED PLAQUE

Making the lino plaque is much like making the lino block. The materials required and the methods used are exactly the same. However, there is a difference in the use to which each is put. The block is used for the making of prints, whereas the plaque is used for a wall decoration, or as the decorative portion of a book end.

When the cutting of the plaque is completed, it may be finished by (a) waxing either the relief portion with furniture wax —this is allowed to dry and then rubbed with a soft cloth—or (b) painting it with household enamels.

THE INLAID PLAQUE

It is possible to inlay carved plaques by filling the carved portions with plastic wood or plastic cement. Press the inlay material into the correct areas with the fingers or pliable stick. For best results allow the inlay to extend slightly above the surface of the linoleum. Allow the inlay material to dry and then remove the excess with fine sandpaper or steel wool. Wax or varnish the completed unit to give it a suitable finish.

LINOLEUM BUTTONS AND BUCKLES

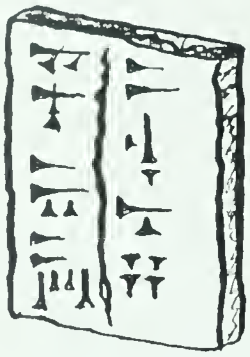
Another way to use linoleum scrap is to make linoleum buttons. These are suitable for sweaters or sport costumes. Cut out the button shapes and sandpaper the edges. Plan the decorative pattern, transfer it to the linoleum, and then remove by carving any of the linoleum not to be included in the design unit. Use a fine drill (1/16″) for the holes in the button. They are to be sewn to the top of the material; a dome fastener is to be sewn underneath the material. For the buckles use a sharp knife or coping saw to remove the interior sections. Decorate by carving in relief.

QUESTIONS

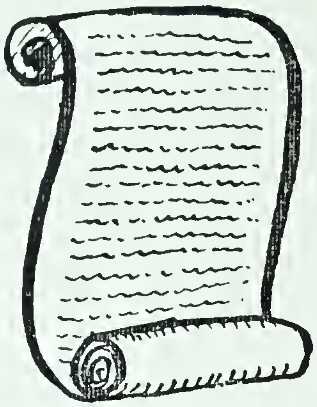
1. Why is the design unit reversed before it is transferred to the linoleum?
2. How can you check the order and shape of the lettering before it is printed?
3. What may be the result if you neglect (1) to scoop out deeply the large, open areas; (2) to remove the linoleum particles before printing; (3) to keep the handle of the brayer off the inking plate?
4. Why is beeswax rubbed on the print paper before burnishing?
5. What is the printing order in a multi-coloured print?
6. What method do you use in pasting a book plate to the inside cover of a book.
7. Explain the meaning of each of these terms: burnishing; brayer; "ex libris"; monogram; printing guide.

ENRICHMENT ACTIVITIES

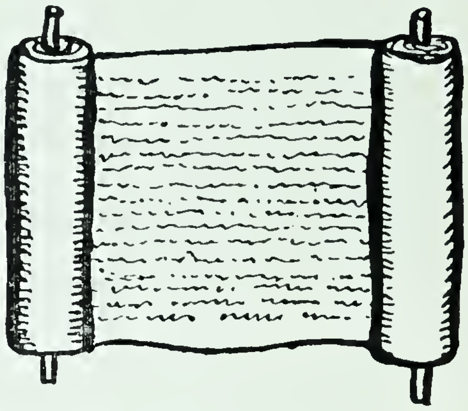
1. What materials are used in the manufacture of linoleum?
2. Consult the Encyclopaedia for information about woodcuts and wood engravings. How do they differ from one another?
3. Why are the names of Dürer, Hokusai, and Bewick connected with block printing?
4. Can you account for the popularity of woodcuts and engravings in Germany during the XV and XVI centuries?
5. The public libraries of large cities usually have their own book plates. Write and ask them for copies. Start a collection.



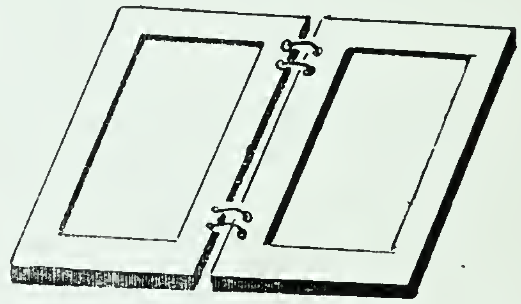
Babylonian clay tablet.



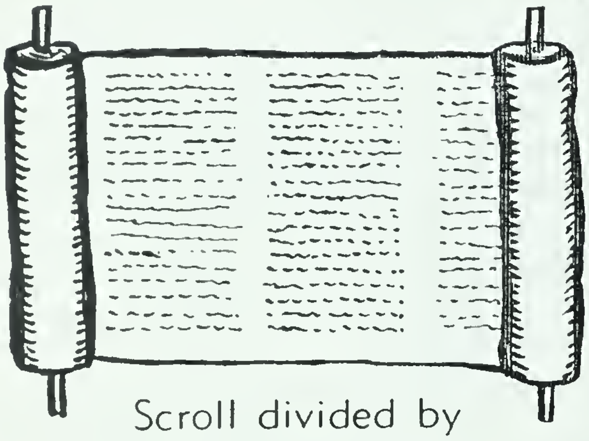
Papyrus scroll



Scroll written horizontally and read crosswise.

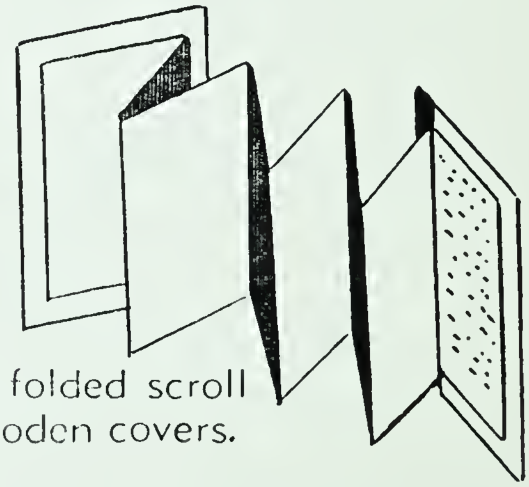


Roman wax tablets hinged together with a thong.



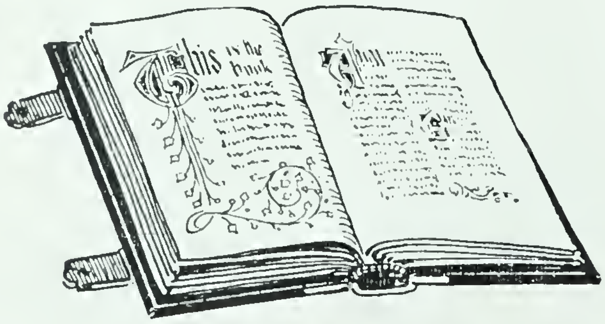
Scroll divided by margins into pages.

Scroll with rod

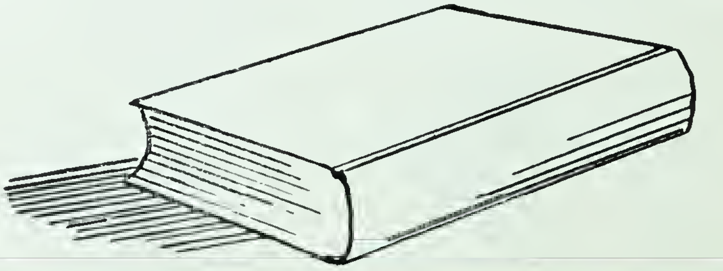


Accordion folded scroll with wooden covers.

Mediaeval illuminated manuscript in leather with metal clasps,



Modern cloth-covered book with machine-



BOOKCRAFT

1. Historical Outline

Man's attempts to leave a written record have resulted in books being made from clay, plants, wax, leather, cloth, and paper. The Babylonians, who inscribed their messages on soft clay, were unable to bind the hardened tiles into one unit, with the result that when the tiles were arranged in one continuous series, these early books must have resembled a stack of bricks.

The Egyptians were ingenious enough to make a writing surface out of papyrus, a plant which they used for many things. This was done by splitting the husk of the plant into many long, narrow strips which were laid side by side. When a convenient width had been reached, a second layer was placed at right angles to the first. These layers were soaked and beaten into a pulp so that both layers might be cemented together. The papyrus sheet was then dried in the sun, and finally smoothed and polished with a smooth stone or bone. To make a scroll, sheets of papyrus were pasted together. Some scrolls were many feet long. To offset the awkwardness of length, the scroll was generally wound about a rod. After a time this type was changed to the kind in which the writing was parallel to the length of the scroll instead of at right angles to it; and two rods were now used instead of one. As the reading of the book progressed, the portion read would be wound about one rod, and the unread portion would be unwound merely by turning the other rod. No one knows how much time elapsed—it may have been centuries—before the continuous horizontal writing was divided into pages by means of margins. This was a very significant change. Can you explain how this arrangement would be convenient for anyone not wishing to complete the reading of the scroll at one sitting?

The skins of goats and sheep had long been used as a writing surface. It finally occurred to one bright person that if folds were made (accordion fashion) along the margins of the scrolls, the book might be more convenient to hold and to read. Putting wooden covers on the end sheets gave suitable protection to the contents. Such a flat book might have been suggested by the Roman use of wax tablets for writing. Roman messages were frequently written on wax placed in wooden-backed frames that were hinged together by means of thongs. It was possible to insert additional frames when the length of the message demanded it. The wax was below the surface of the frame so that closing the tablets did not mar the writing. The wooden backs provided protecting covers for the complete unit.

The Japanese made an important improvement upon the accordion type of book, which they still use extensively because of their abundant supply of semi-transparent rice paper, when they sewed all the folds at one end together. In this way they eliminated the need for covers to keep the folded sections in place.

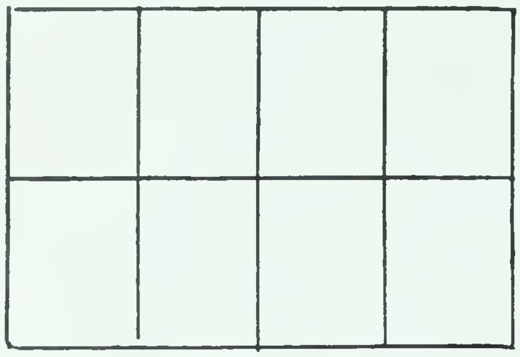
Even though the secret of making paper had been learned by the Chinese many centuries earlier, it was not until the XIII Century that paper-making was introduced into Europe. The invention of printing increased the demand for more paper, and then wood fibres were substituted for old rags which had been, and still are used in the manufacture of fine paper.

Books remained a luxury until the introduction of larger and faster printing presses. The desire on the part of the publishers to meet the demand of an ever-increasing reading public for cheaply-made books was one of the reasons for substituting cloth for leather as a binding material.

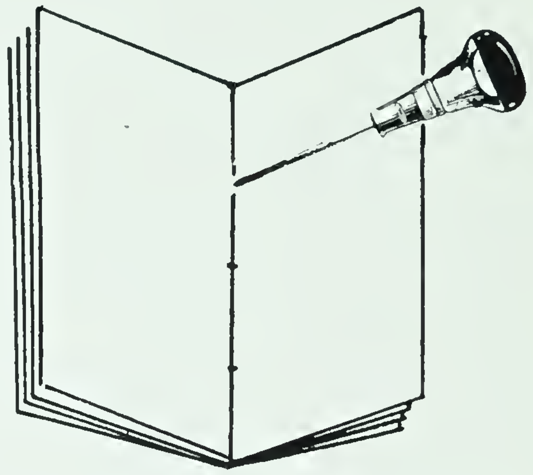
* * *

"Not as ours, the books of old,
Things that steam can stamp and fold;
Not as ours, the books of yore,
Rows of type and nothing more."

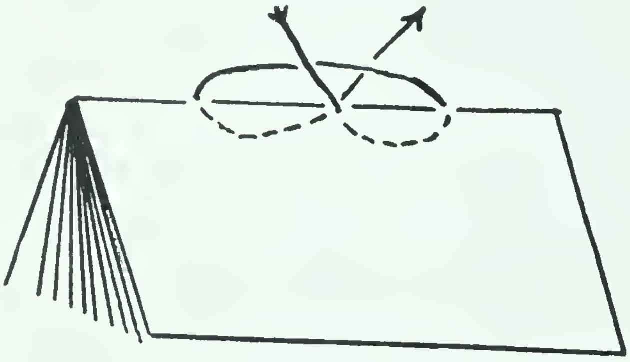
Austin Dobson
—To a Missal of the XIII Century



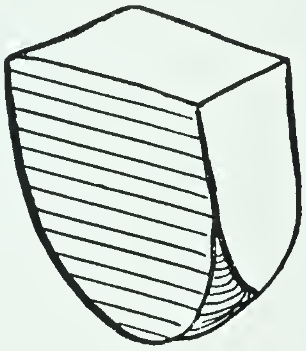
To fold a large sheet of paper into a signature, fold from left to right, then top to bottom, and, finally, from left to right to get eight leaves or sixteen pages.



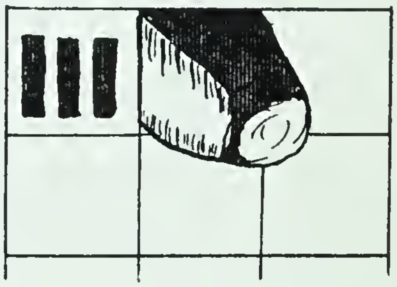
Piercing holes in the signature.



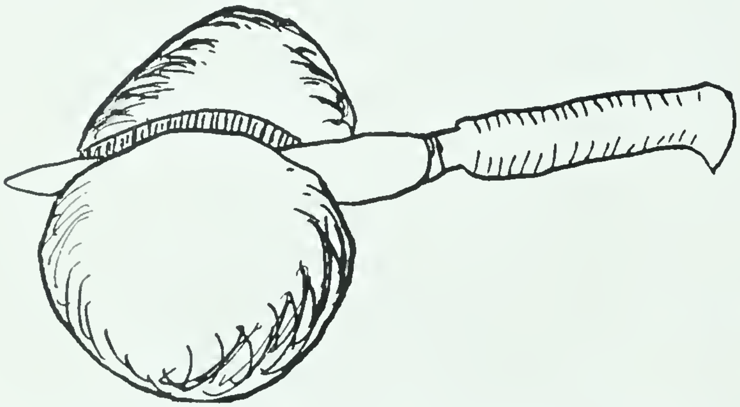
The pamphlet tie



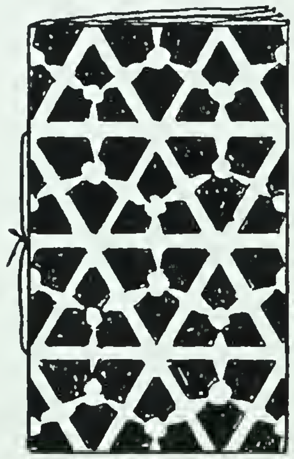
Half of potato with squared corner for accurate registration.



How to use the squared corner for accurate registration of the pattern.

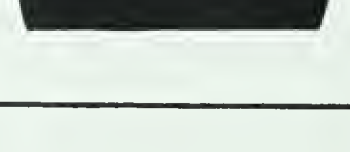


Slicing potato to get a large even surface.



Pamphlet cover decorated by the potato printing method.

Cross section showing the effects of "V" and "U" cuts.



2. Book Construction

"Of the making of many books there is no end."—Ecc. xii-12.

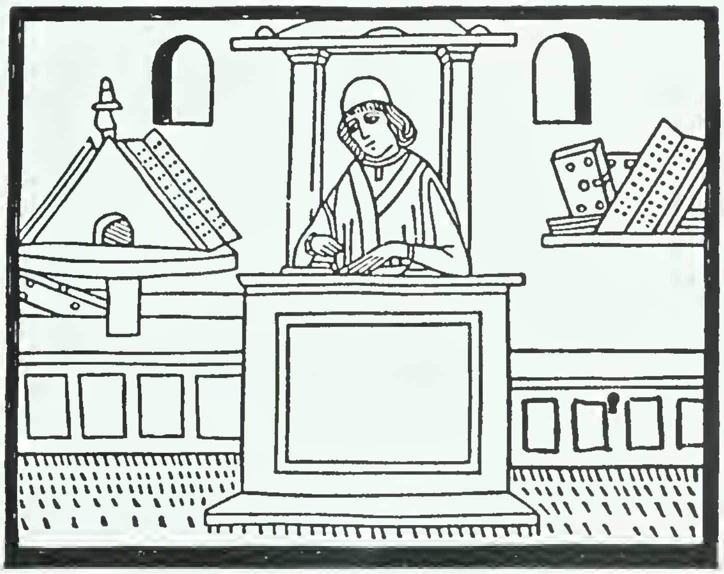
There is no one way in which to make a book. There are many different methods and combinations of methods which, in the main, are dependent upon the tools and materials available.

The simplest form of book to make is the pamphlet made from one signature. This term is used to describe a large sheet of paper that has been folded to divide the large sheet into smaller sections, which will eventually become the individual leaves of the book. If large sheets of construction paper are available, fold as indicated, and then cut the closed ends of the individual leaves. Typing paper, 8½″ x 11″, can be used if the other paper is not on hand.

(*a*) *Single Signature Book*

Materials required—large sheet of construction paper or 10 sheets of typing paper, awl or ice-pick, ornamental lace or string, ruler, pencil, paring knife, powdered tempera, brush, potato, thin cardboard 9″ x 12″.

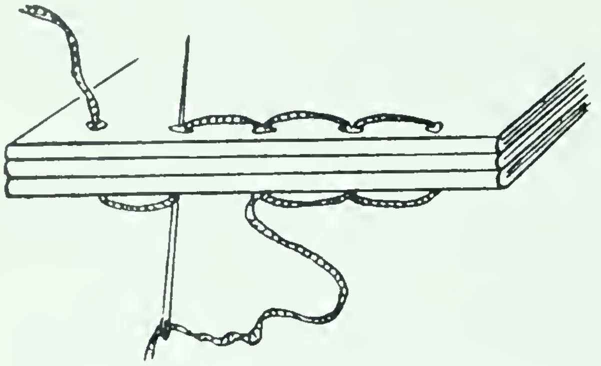
1. Straighten sheets of typing paper so that all the edges are in line with one another. Fold the sheets halfway along the long side so as to give one signature of 20 leaves and 40 pages, each 8½″ x 5½″. Use awl to punch holes as indicated in the diagram.
2. Decorate the outer surface of the cardboard by the potato printing method. See section on pattern design for a plan for distributing the unit that is to be repeated. To get a printing surface on a potato:
   - (a) Use a knife with a long blade to ensure a flat, even surface on which to draw and cut the decorative unit. Trim the potato so that there is at least one right angle in order to register the print accurately. Keep the odd pieces.
   - (b) A set of lino tools is ideal for cutting the design, but an ordinary pocket knife and an inverted pen nib will serve for most designs.
   - (c) Cut away the waste areas so that the unit will stand in bold relief.
   - (d) Apply the tempera by means of a brush. The paint should have the consistency of thick cream.
   - (e) Place potato-cut to which colour has been applied, on the paper that is to be decorated.
   - (f) Press firmly. Repeat.
3. When the paint on the cover has dried, fold the cover down the centre so that it will overlap the folded sheets by ¼″ on all sides. Pierce holes in the fold to correspond with those of the folded sheets. Tie the parts together as indicated in the diagram.



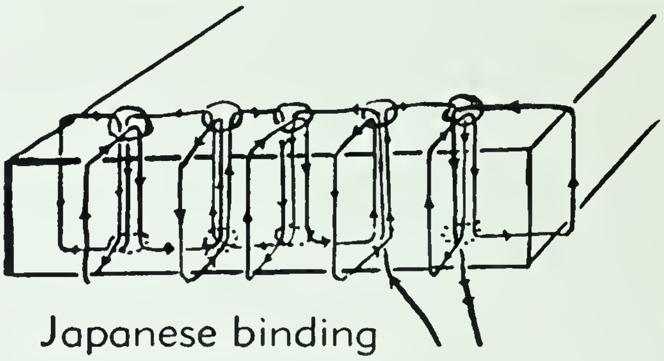
A medieval library (from an old print)

* * *

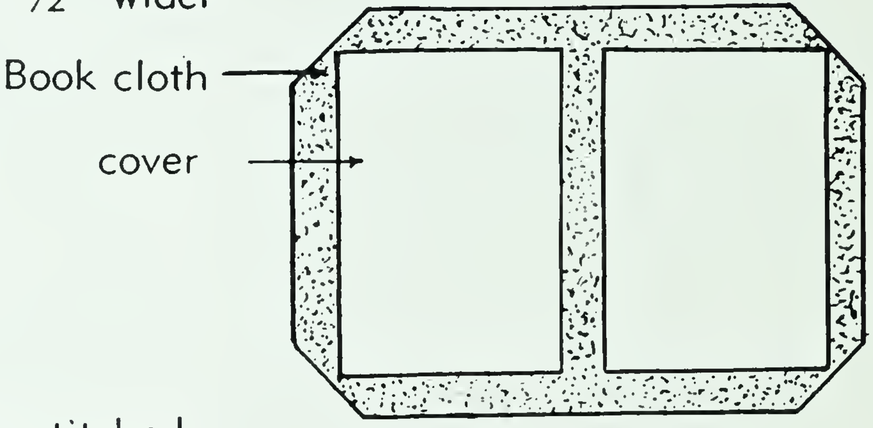
Some subtle relation there should be between the inside and the outside of a book, between its contents and ornamentation; and no one can produce the right design for a book who knows nothing about the book.—*T. J. Cobden-Sanderson*

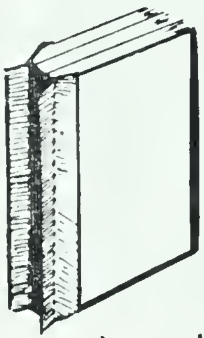


Cobbler's stitch-cover board ½″ wider and longer than signature

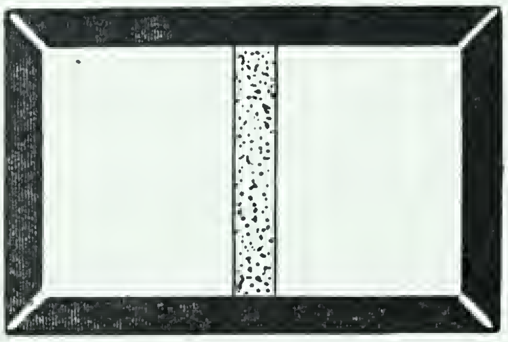


Japanese binding

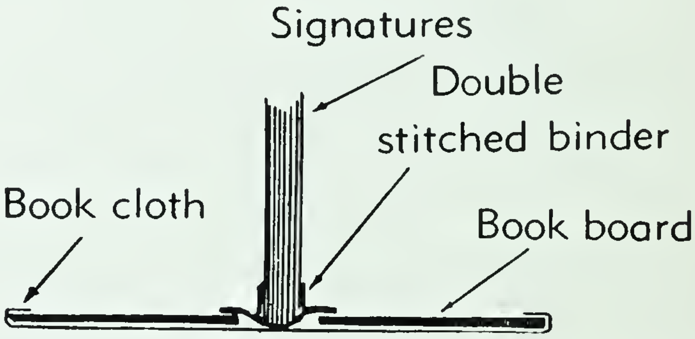




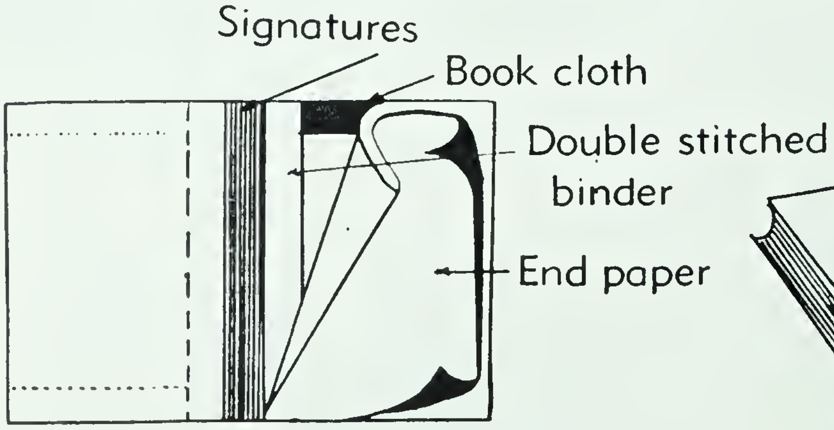
Method of pasting the double-stitched binder over the back edge of the sewn signatures



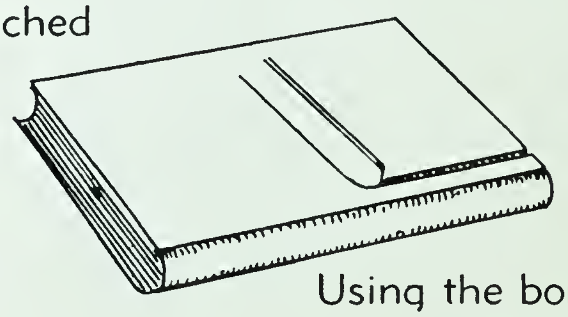
Note mitred corners and darts at back Book cloth pasted over book boards.



Attaching the casing to the contents.



Pasting the end papers into place.



Using the bone folder to make the hinge.

(*b*) *Two and Three Signature Books*

When making a thick pamphlet, bind the signatures together with the Cobbler's stitch, or should a flexible cover be appropriate, the Japanese stitch may be used to bend the cover and the contents in one operation.

For a more durable cover, the casing should be made out of book board and covered with book cloth.

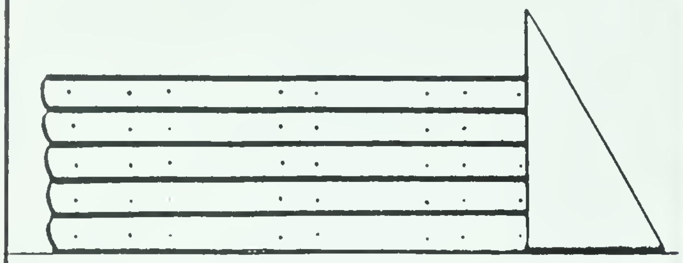
Materials required—double-stitched binder—a Gaylord product, paste, end papers, paper and thread.

1. Cut cover boards (cardboard at least 1/16″ thick) as shown in diagram.
2. Cut end papers to the same size as cover boards.
3. To arrive at the length of book cloth required to cover the book, take twice the width of the cover board, add 2″ for overlapping, add the thickness of the sewn edge of the signatures, and then add ¾″ to provide for the hinges. The width of book cloth required is 3″ plus the height of the signatures.
4. Place the cover boards on the book cloth. See diagram.
5. Centre cover boards to allow for thickness of signature, hinges, and overlapping. With pencil, outline position of boards on the inner surface of the book cloth.
6. Remove covers. Place the book cloth on waste newspaper, inner surface facing up, and liberally cover this surface with library paste. Do not neglect the edges. Mitre the corners and the back section.
7. Replace the covers within the outline, and fold the overlapping sections on to the cover board.
8. Select a width of double-stitched binder that corresponds closely with the width of the sewn edge of the signatures. Its length should be ⅛″ shorter than that of the signature. Spread the two sections apart, apply paste to one surface, and paste the binder on the sewn edge of the signature.
9. To attach the signature to the casing, cover the outer surface of the outside strip of binder with paste, and press it down on the covers. Make sure that there is sufficient space left for the hinge.
10. Decorate the end papers by the potato printing method. When dry, apply paste to the undecorated side of the end papers. Paste the end papers to the uncovered side of the cover boards, using a soft cloth to smooth out the wrinkles. Place sheets of waxed paper between the end papers and the signatures to prevent the moisture of the paste from marring the first pages of the signature. Use bone folder to mark hinges. Place the complete book in a press or under a heavy weight until dry.

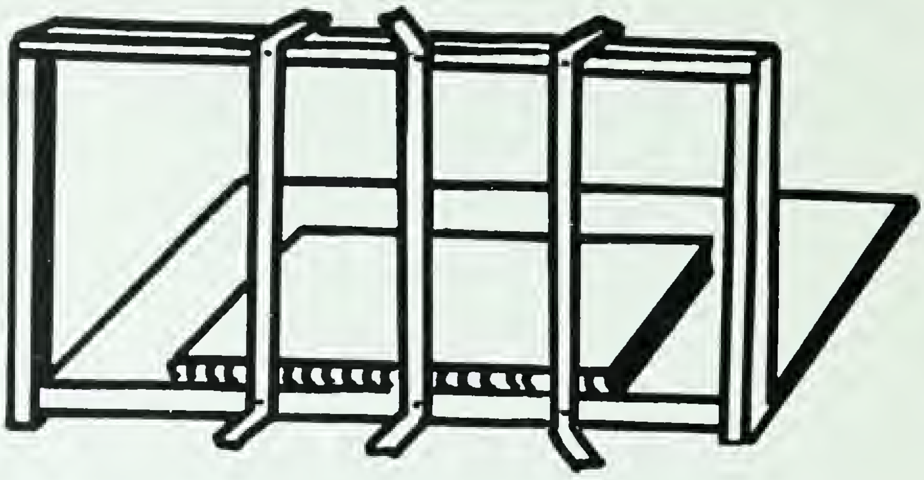
(*c*) *Cloth Bound Diary*

Materials required—50 sheets of typing paper, awl or ice-pick, sewing frame, backing tape, linen thread, needle, whipcord, book cloth, library paste, book board, scissors, double-stitched binder, end papers, marbling paints, ruler.

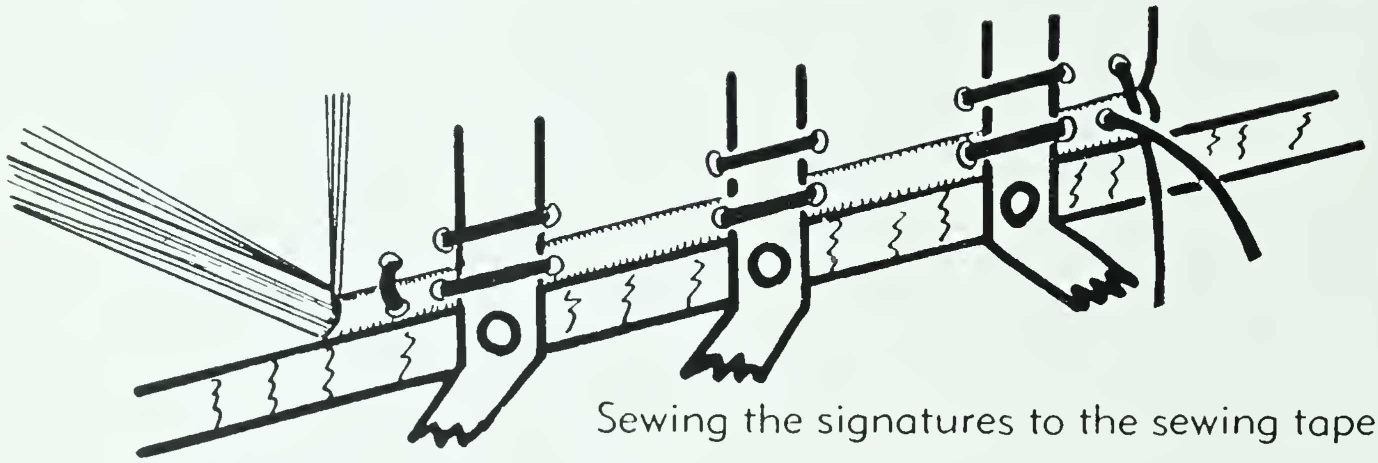
1. Divide the paper into five groups with 10 sheets in each group.
2. Fold each group in half to form five signatures each 8½″ x 5½″. Each signature will have 20 leaves, or 40 pages each. When the diary is completed, each page will be divided in half by a drawn line, with the result that there will be 400 half pages, one for each day of the year, together with spare half pages for special occasions and celebrations.
3. Place the ruler along the folded edge of one of the signatures. Along this edge mark the lengths as shown in diagram. These points indicate the location of points through which the needle will pass when sewing the signatures to one another.
4. Stack the other four signatures directly above the marked signature and mark on them similar location points for sewing. The first signature will serve as a pattern.



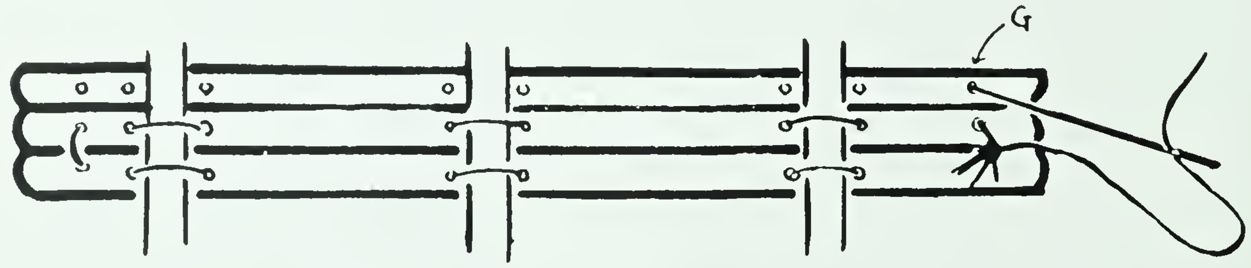
Marking location points for sewing



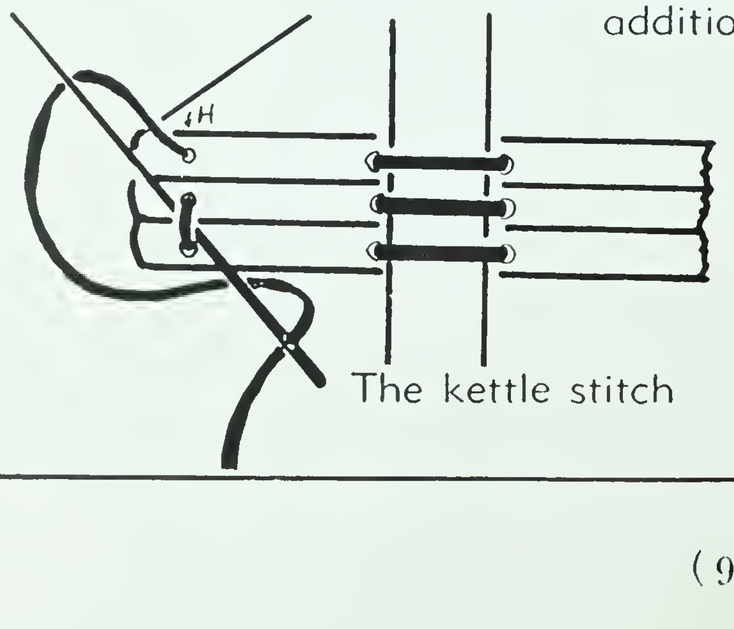
First signature in the sewing frame



Sewing the signatures to the sewing tapes

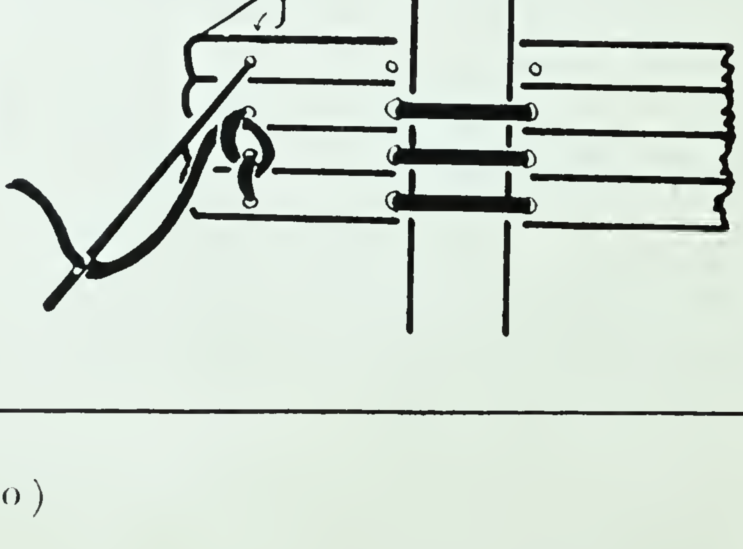


Attaching the third signature



The kettle stitch

Method of attaching the fourth and additional signatures



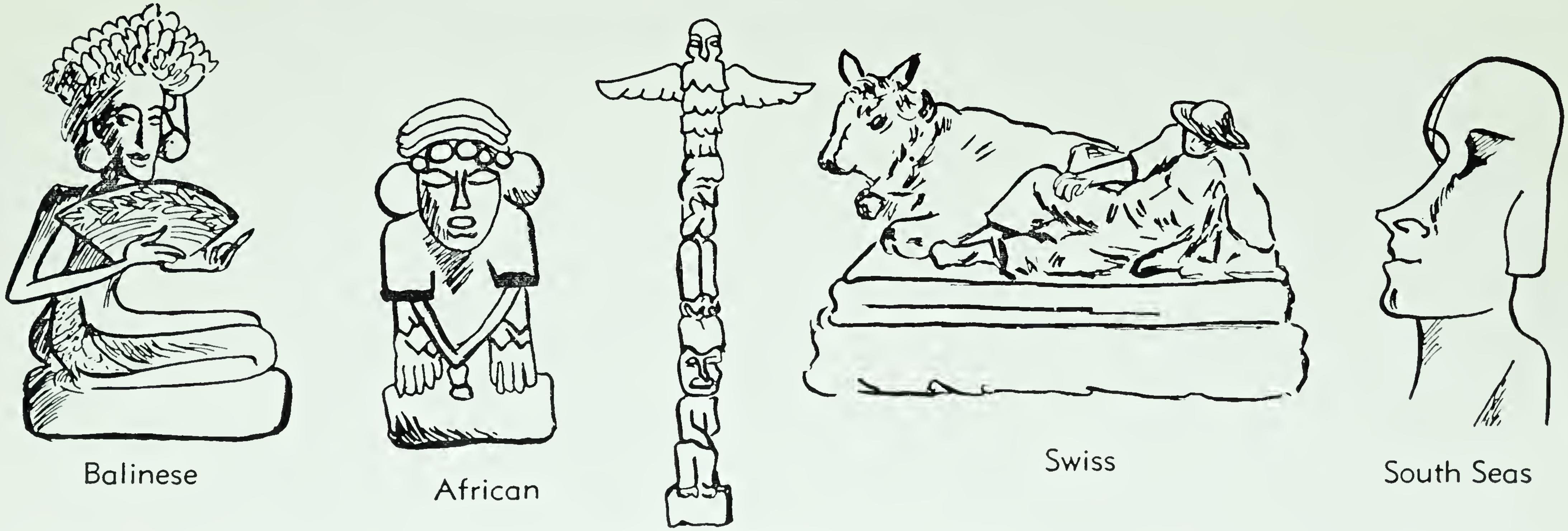
5. Arrange the tapes on the sewing frame so that they will occupy the ½″ spaces on the folded edges of the signatures.
6. Use the awl to pierce the folds at the points marked along each signature.
7. Place the first signature in the sewing frame with the sewing tapes covering the ½″ sections.
8. By referring to diagram, note the in-and-out progress of the threaded needle along the fold of the first signature. When the last hole of the first signature has been reached, the second signature is placed directly above the first, the holes for sewing are lined up with the sewing tapes, and the direction of the sewing is reversed. Note method of joining the two signatures.
9. When the needle emerges from the last hole of the second signature, draw the main thread tight, and tie it to the free end of the starting thread to strengthen the bond between the two signatures.
10. Line up the third signature directly above the first and second. Continue to sew by putting the needle through G. This reverses the direction of the needle to that of the second signature. Continue until the needle emerges from H.
11. The third signature is connected to the second by means of a kettle stitch before passing on to the fourth signature through J. Note how this stitch is made. Diagram V. Repeat the kettle stitch at the ends of the other two remaining signatures. When complete, secure the end of the thread by several of these stitches and cut it off close.
12. Cut the tapes ½″ from the back edge of the sewn signatures. (In other bookbinding methods the tapes, together with a material called super cloth, is used to join the contents to the casing. Here, however, the double stitched binder will serve that purpose.) Round the back edge by pushing the front edge outward with the thumb of your right hand while pulling the contents toward you with your left hand. Put the contents into a press or under a heavy weight, and brush a thin coat of paste over the back edge, tapes and thread. Allow to dry.
13. Select the width of double-stitched binder that closely corresponds to the width of the back edge, and cut a length that is ⅛″ less than the length of the signature.
14. Make casing as described for Two or Three Signature Books.
15. Attach contents to casing by pasting the free edges of the double-stitched binder to the backing cloth and book board.
16. The end papers are then attached to the inner sides of the covers. They may be decorated with marbling paints. These may be secured from art supply distributors or made by thinning oil paints of various colours with naphtha, gasoline, or a non-inflammable cleaner.

How to Make Marbled Paper

Materials required—waste newspaper, large sheets of newsprint or construction paper, large flat pan, vinegar, house enamels, naphtha gas, old toothbrushes, mixing tins.

1. Thin the house enamels by adding small quantities of naphtha gas; stir the mixture well.
2. Cover the surface of the flat pan with water and add a drop or two of vinegar.
3. Dip the toothbrushes into the marbling paint and spatter the paints from the brushes by shaking them over the surface of the water in the pan.
4. Stir the mixture gently to merge the various colours into a pattern.
5. When satisfied with the effect, spread the paper over the surface of the liquid, allow it to remain only for an instant, and then lift it off. The pattern made by the marbling paint will be transferred to the paper. If the colour is too weak, too much naphtha has been used. If the paint sticks to the paper, either too little naphtha has

CARVING FROM MANY LANDS



Balinese

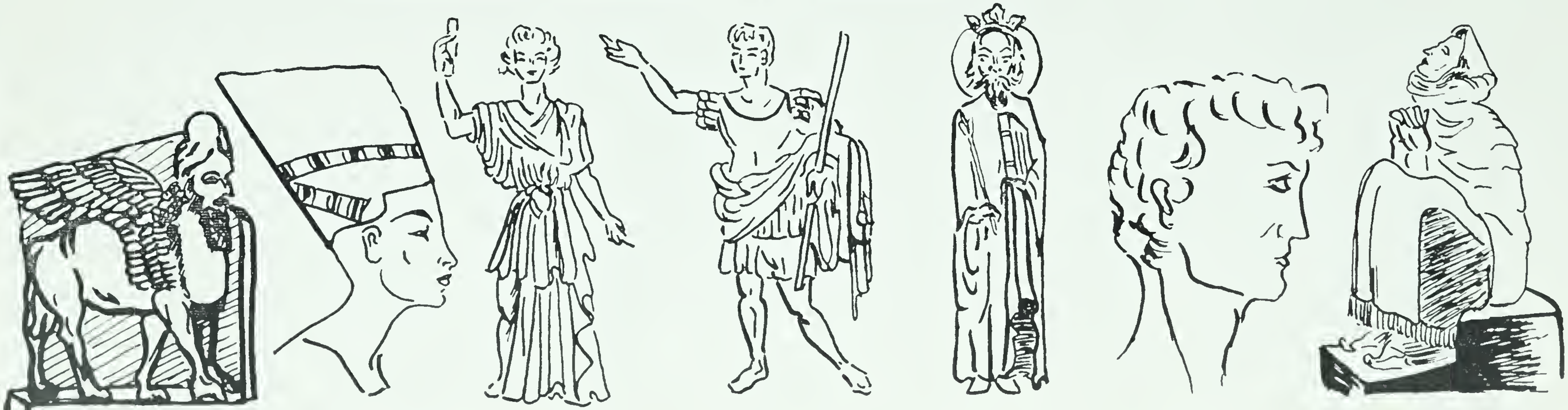
African

North American

Swiss

South Seas

SCULPTURE THROUGH THE CENTURIES



3000 B.C.
Assyrian

2000 B.C.
Egyptian

400 B.C.
Greek

11 A.D.
Roman

1200 A.D.
Gothic

1600 A.D
Renaissance

1900 Modern

been used, or the paint was not spread properly before taking the paper print.

6. Practice with waste newspaper until you feel experienced enough to mix and pick up interesting patterns.
7. For a variation in this type of printing, dip a clean water colour brush into water and paint your initials in large, bold letters on a sheet of paper. While it is still wet, use this sheet to pick up a marbling pattern. You will note that the pattern will not cover the area covered by the water and this area will show up as a water mark, the colour of the background paper. This method can be used to decorate end papers with a combination of water and marbled patterns.

QUESTIONS

1. In what way is potato printing similar to linoleum printing?
2. What differences are there between the pamphlet tie, cobbler's stitch, and kettle stitch? Where is each used? Why?
3. How can you arrive at the amount of book cloth needed to provide a cover for the book boards?
4. Where and why is waxed paper used in this work?
5. Can you explain why the marbling paints remain on the surface of the water?

ENRICHMENT ACTIVITIES

1. Explain the meaning of the words—folio, quarto, and octavo as used in Bookcraft.
2. Find the source meanings of the words—paper and Bible. What connection have these meanings with Bookcraft?
3. Visit a bindery to learn how the hand and machine methods of binding compare and differ.
4. Ask the Librarian to show you pictures of Mediaeval Illuminated Manuscripts.
5. Can you explain why Bookcraft has been referred to as a Graphic Art?

SOAP CARVING

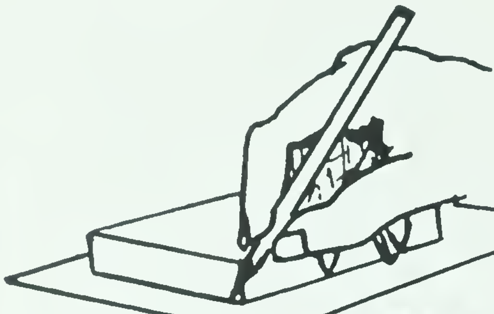
INTRODUCTION

Carving is the art of all ages and of all nations. It has delighted and interested both modern and primitive peoples. Evidences of the carver's art are found from the Arctic Circle across the seas to New Zealand, and from British Columbia around the world to China. This universal interest may be due to the fact that the carver can make use of readily available material, and needs but simple tools to produce effective work. The original shape of a stone, a bone, or a piece of wood might have suggested a form with which the artist was familiar; a few minor changes made the mass harmonize with his idea. In other words, the artist visualized a shape within the mass, a shape which remained hidden until he freed it. Van Loon thinks that the outstretched limbs of a tree might have suggested a human form with outstretched limbs, and attributes the rigidity of the early statues to the carver's desire to adhere to this fixed and traditional shape.

One can readily see that the material to be carved will determine the nature of the carving tool. A pocket knife could do excellent work on a piece of soft wood, but would be useless in the carving of a granite block; the mallet and chisel of the stone carver would not be the most effective tools for carving a wax block. It is reasonable to assume that the greater the appropriateness between the tool and the material, the greater will be the opportunity for getting satisfactory results.

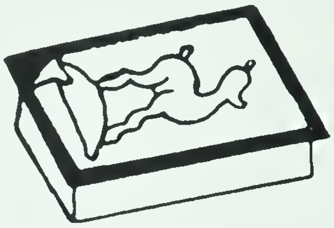
Materials required—1 bar of fresh soap, paring knife, carbon paper, container for soap chips.

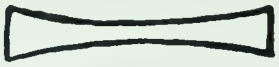
1. On a piece of paper outline the side and end surfaces of the cake of soap. These will indicate the carving limits.
2. Draw within the spaces provided above, the side, front, and back view of the figure to be carved. It is more preferable to choose a form with which you are familiar, i.e., dog, horse, human head, etc., than to carve one which will require more information concerning the shape and outline than is readily available. First attempts, which are primarily made to gain control over the cutting tools and the material to be carved, may be made from any available statuette. Subsequent work should be visualized, drawn, and carved without help from a model.



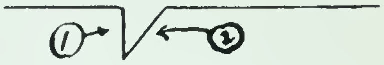
Outlining bar of soap on paper

Tracing pattern on soap using carbon paper

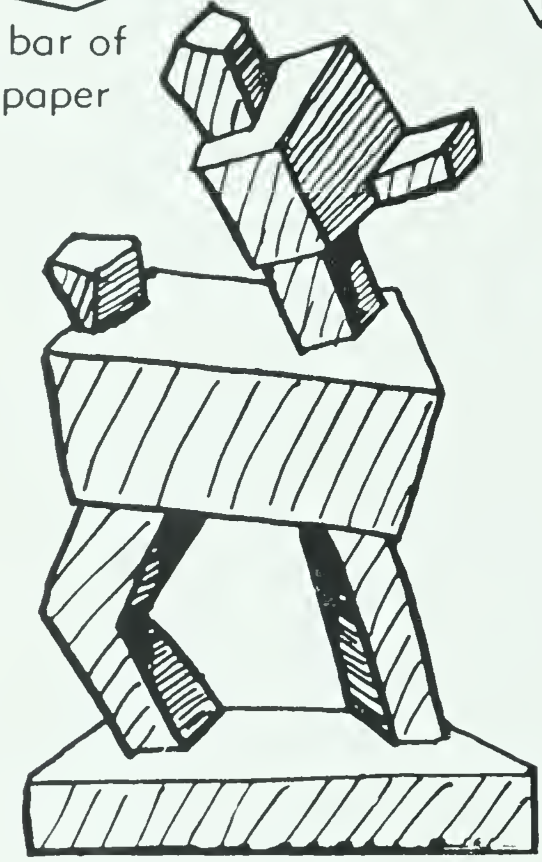




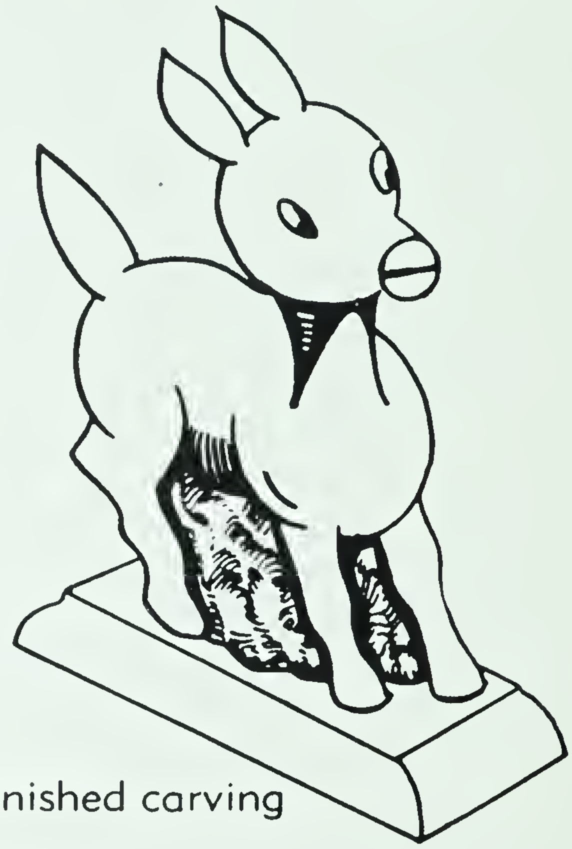
Do not make hollows in soap when removing lettering



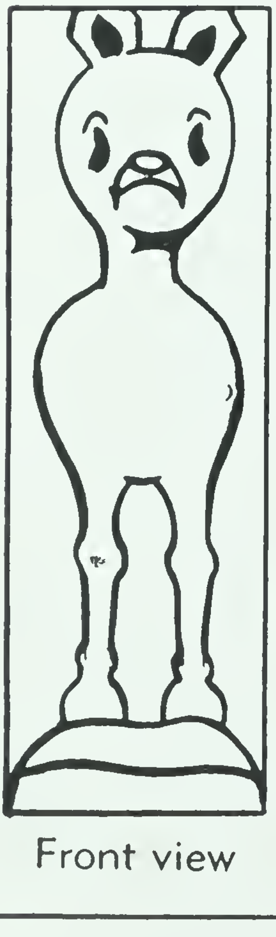
How to make a stop cut



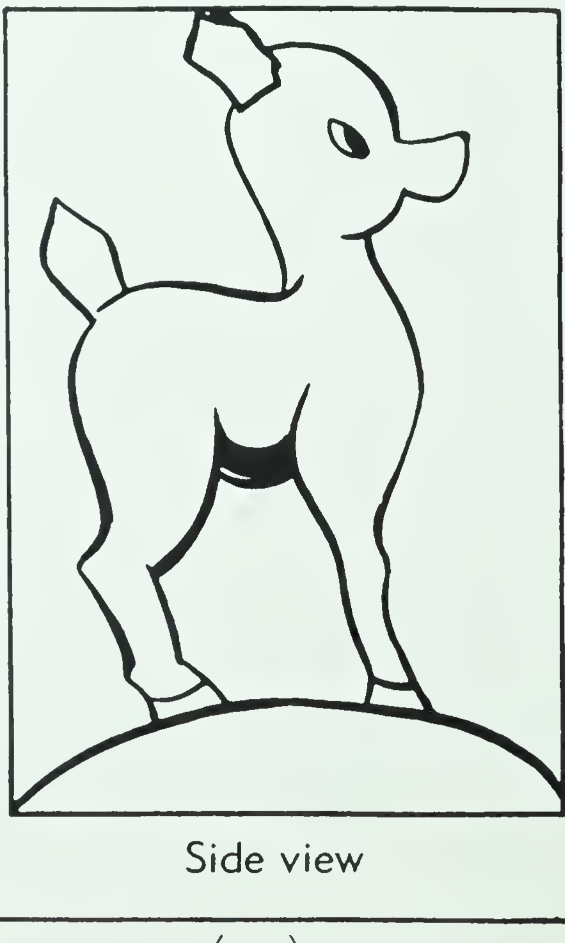
Carving blocked out



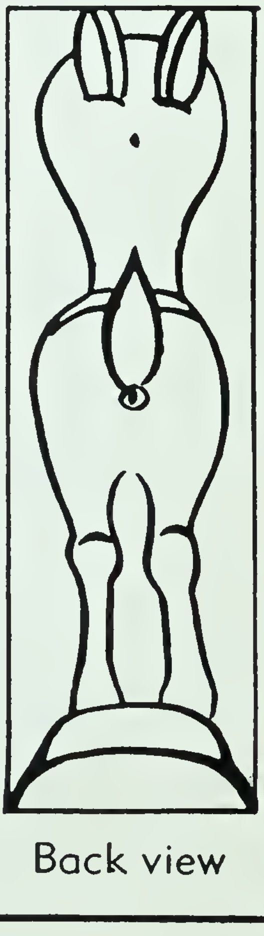
Finished carving



Front view



Side view



Back view

3. Strive for simplicity of effect. Do not attempt spindly-legged animals, or thin large areas as may be found in sails. Keep your carving compact. Remember that it is the general form and not the detail that will give character to your carving. "A good statue can be rolled down hill without damage."—Michelangelo
4. Scrape the lettering and ridges from the soap. Only remove what is necessary. Be careful not to make hollows in the surface. Put the chips and scrapings in a container: take them to mother for her washing.
5. By means of carbon paper, trace the side, front, and back views on the soap.
6. Cut away excess soap to ¼″ of the outline. To cut soap, make a stop cut, and then pare towards the stop cut. If you will follow this procedure, your chances of breaking off large and necessary portions of the carving will be reduced. If the soap is soft, your knife will require cleaning every little while. Borrow a neighbour's knife and scrape off the soap clinging to your blade: in return for the loan, clean his knife, too.
7. Your next problem is to establish the main planes of the head and body. Give all your attention to the big forms and angles—the smaller ones will look after themselves. The nose and ears project farthest from the head—be careful not to cut off too much when shaping them. Note that the ears and the nose become wider as they taper back toward the head. The cheeks, too, become wider as they slant from the chin back to the ears. Do not fail to notice the great amount of similarity about the two sides of the normal face. When using the human form as model, remember that the shoulders are generally the widest part, while the bodies of animals are generally shaped ▼ rather than ▲. The muscles of the upper part of the hind limbs are usually more powerful and, therefore, larger and more prominent than those of the front limbs. Even though the legs may not be the same thickness throughout, for the purpose of stability, or to make the animal appear more stocky than it is, vary their thickness only a little: they *never* become narrower as they approach the body. The paws or feet are generally so small in relation to the rest of the body that they may be left cut without injury to the general effect.
8. When the rough construction has been completed, it is then time to start to attain a few but significant details.
9. *Caution!* Do not work too much on any one side or plane. Keep turning the carving round so that no one side will get out of proportion because too much has been removed.
10. Round off the sharp edges and corners. Merge the sections so that they seem to grow out of one another, rather than have the appearance of having been stuck on. The eyes are not hollows in the head but are spheres set in hollows. Watch your treatment of the lips and chin; properly carved, they can be made to suggest a great deal. Work similarly with other details. Carve slowly and carefully until the desired effect is obtained. And then, stop! Too often a good carving is spoiled because the student could not resist the temptation to cut just a little more deeply, or expertly.
11. A broken portion may be stuck to the main mass by moistening both surfaces of the break with warm water until the soap becomes soft and jelly-like. Sharpen both ends of a small piece of toothpick, stick one end into the main mass of the soap and then put the broken part in its proper position over the free end of the embedded toothpick, and press the pieces firmly together. Allow to dry before smoothing.
12. To give the soap carving a suitable finish wipe it with a soft, moist cloth. Be care-

ful not to rub so hard as to turn the carefully carved planes into soap suds. A coat of colourless shellac, or coloured nail polish will provide a hard glossy surface that will resist ordinary room moisture.

QUESTIONS

1. What is meant by "the artist visualized a shape within the mass, a shape which remained hidden until he freed it"?
2. Of what importance are stop cuts in carving?
3. How can viewing objects with half-closed eyes aid you in your carving?
4. How can broken sections be welded back to the main mass?

ENRICHMENT ACTIVITIES

1. Get some information on the lives of any three of the following famous sculptors: Phidias, Michaelangelo, Rodin, Eric Gill.
2. Make a collection of public monuments in which sculpture plays a prominent role.
3. Consult the *Canadian Geographical Journal* for an article by Marius Barbeau on "Laurentian Wood Carvers".
4. See what you can find out about the history and meaning of the totem poles of the British Columbian Indians.
5. For the most important scene of the play being read in your English class, make a model stage and carve the furniture and figures from soap. Each student should contribute at least one carving to this co-operative undertaking.

POSTERS

(Note to teacher: Have on display a series of posters which will illustrate the principles that are discussed in this section.)

Purpose
- —to give information
- —create a desire for a new product
- —strengthen the desire for an established product
- —popularize a product, name, trade-mark, service

Characteristics
- —attract attention
- —convince
- —carry its message
  - —rapidly
  - —to a long distance
  - —to those moving

—How do the posters displayed illustrate the above principles?

—What story does each tell?

—Is the idea original? Is it an old idea presented in a new way?

—In which of the following ways does the artist appeal to the person looking at the poster?

1. By giving him information?
2. Describing a scene, product, or operation?
3. Explaining the usefulness of the product or service?

OR does the artist try to attract attention by creating a feeling of humour, sadness, curiosity, resentment, patriotism in the spectator?

Means by which the artist tries to achieve the above.

1. PATTERN

—Realistic—trying to show a scene, or product, or event as accurately as it would appear in life;

—Conventional—using only the essential characteristic of scene, product or event, in order to call up in the mind of the spectator the actual thing;

—Geometric—the design has been distorted in order to fill some geometric shape;

—Symbolic—use of line or mass to suggest rather than portray the idea.

2. LETTERING

—Note relationship of the area occupied by lettering in comparison with the total area of the poster.

—Is the lettering or the pattern emphasized?

—Where is it placed on the poster?

—Is the form of the lettering consistent with the idea presented by the poster?

—Can it be seen easily, quickly, at a distance, from moving vehicles?

3. COLOUR

—Is the colour scheme in harmony with the idea?

—Are various colours used, or various shades and tints of the one hue?

—Is the main idea emphasized by warm colours (red, yellow, orange), or by cool colours? (green, blue, violet)

—Is the colour used in large flat areas, or broken up to show distance or thickness?

Things to Avoid in Making Posters

(a) DON'T include details that will not contribute to the idea;

(b) DON'T include details that are so small that a reduction in size would make them disappear or make them ineffective;

(c) DON'T have two parts that demand attention. Harmony between the parts to produce the impression of unity is essential;

(d) DON'T think that every poster must have lettering to explain its message.

Method of Procedure

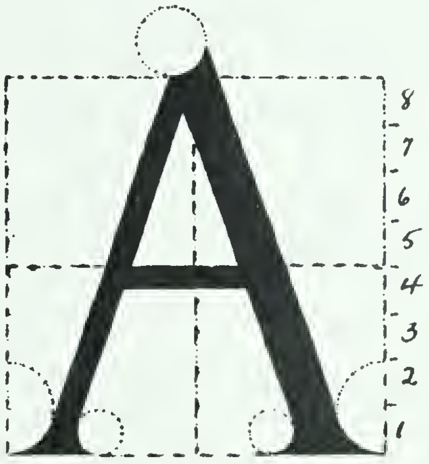
1. Collect ideas and diagrams that are connected with the idea to be presented. Use but do not copy.
2. Choose the material you consider necessary and discard the rest.
3. Be definite about what you wish to stress.
4. Arrange the material in various ways and in different colour schemes to be sure of getting the best results.
5. Plan space for lettering. Do not let its position be an afterthought.
6. When satisfied with arrangement and colour schemes, enlarge and paint.

Enrichment Activities

1. Count the number of posters displayed in one block of your city or town. Mentally compare the number or space that they occupy with other forms of public advertising in the same block.
2. Make a collection of:
   (a) posters from other schools of your community.
   (b) posters made or reproduced by various processes—water colours, tempera, silk screen, lithography, photography, etc.
3. Look up the article on Posters in the Encyclopaedia to learn something about their long and interesting history.

THE ROMAN ALPHABET

A careful study of the alphabet will result in a familiarity with the form and construction of the individual letters. Note that the letter parts are formed either by straight lines, or by portions of a circle. These parts in any particular letter always have the same thickness. Dürer was one of the first craftsmen to investigate the construction of the Roman letter.



Dürer's method of constructing the Roman capital

The widths of the individual letters vary:

O and Q, though circular, are as wide as they are high—8 squares wide.

W and M are wider than they are high—9 squares wide.

C, G, D, U, N, V, A, X and T are slightly narrower than high—7 squares wide.

H, K, Y and Z are three-quarters as wide as high—6 squares wide.

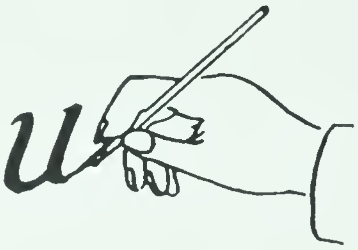
P, R, B, S, E, F and L are approximately half as wide as high—4 squares wide.

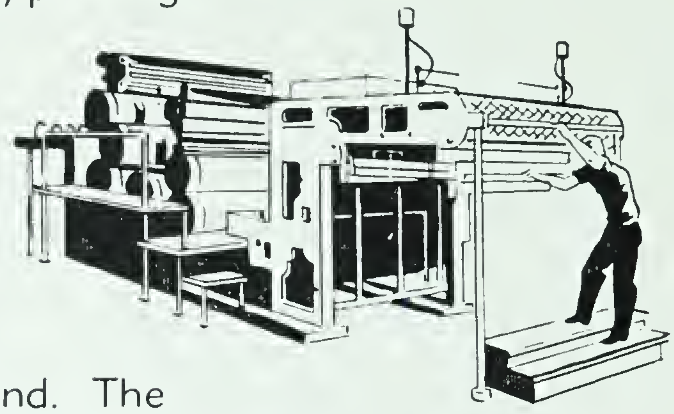
I and J are the narrowest letters—1 square wide.

The centre arm of all capital letters (with the exception of A whose arm comes below the actual centre and the point where the diagonals of X and Y cut) is above the actual centre. See alphabet.

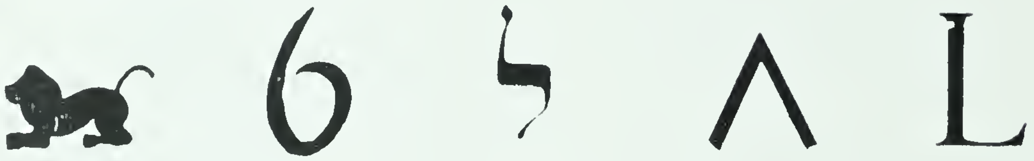
To counteract the optical illusion with regard to height, the points of A, V, W, M and N project slightly above and below the guide lines; and the upper and lower arcs of O, Q, C, G and S project above and below the guide lines. See alphabet. Compare the Sans Serif Alphabet with the Classic Roman.

1. Lettering is a hand technique; printing is a machine process.



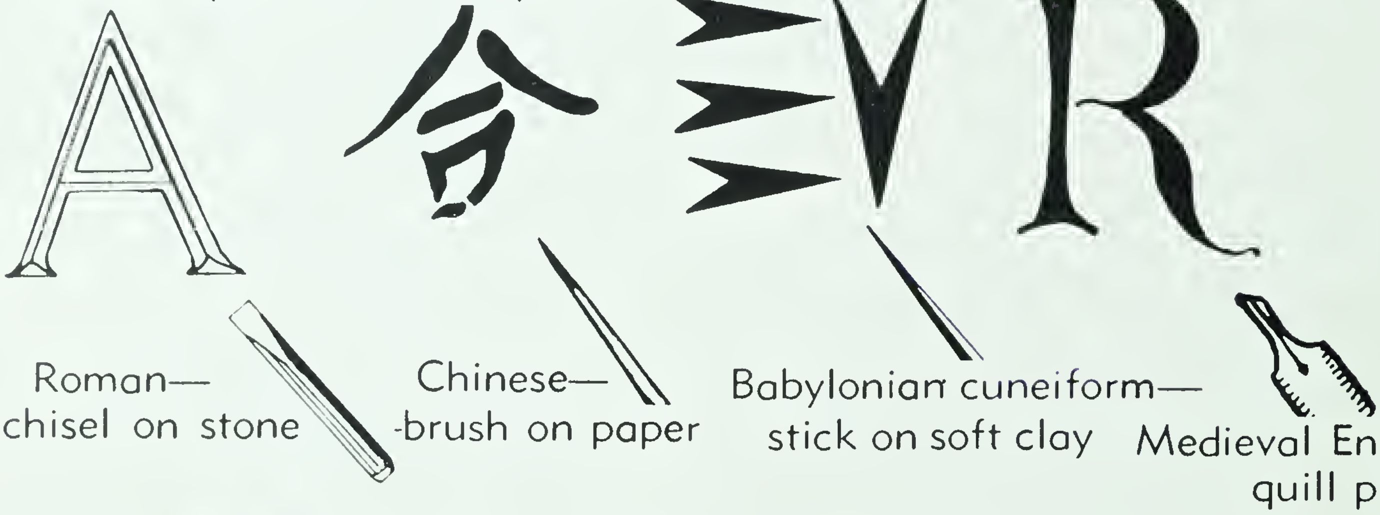


2. A letter is a picture of a sound. The same sound is represented differently in various languages.



Egyptian Phoenician Hebrew Greek Roman

3. The shape of the letter is dependent upon the tool that makes it, and the material upon which it is placed.

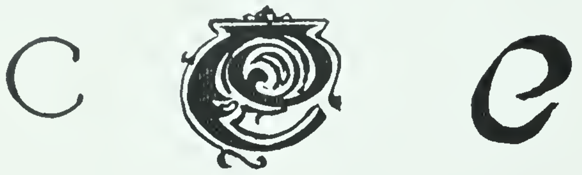


Roman—-cold chisel on stone

Chinese—-brush on paper

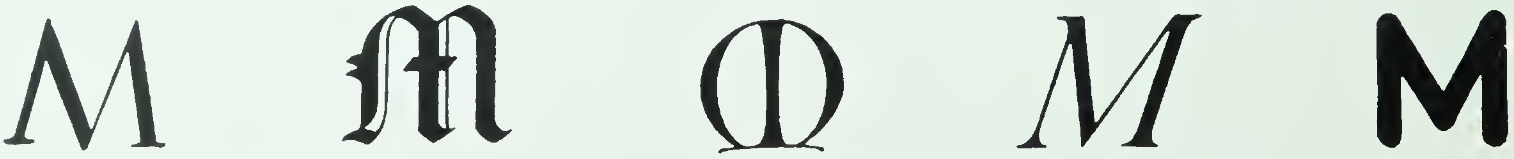
Babylonian cuneiform—stick on soft clay

Medieval English—quill pen

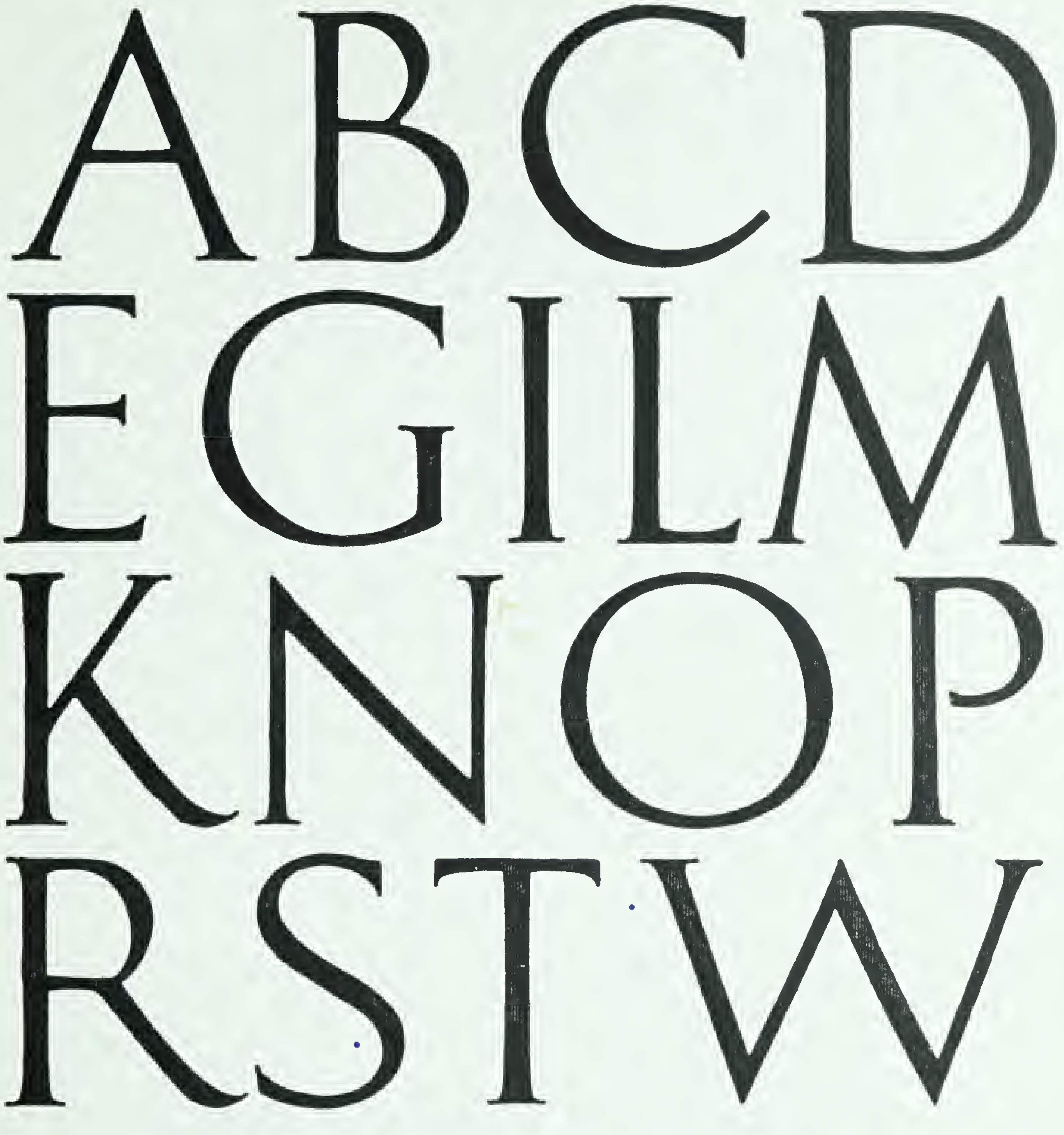


4. The primary consideration in the making of a letter consists in its ability to be read. Excessive ornament reduces its legibility, as does omission, or faulty formation of any of its parts.

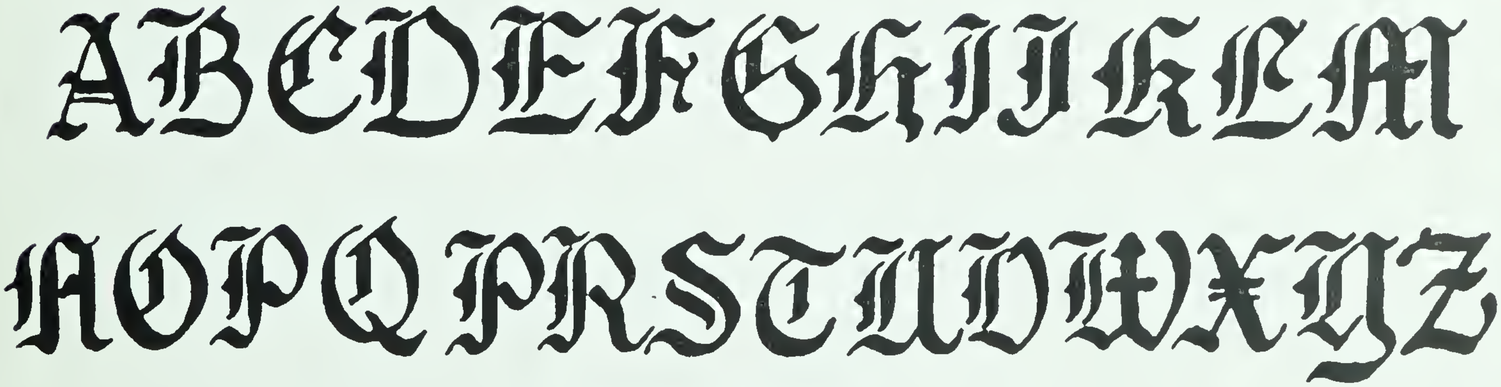
"Letters like men have ancestors."



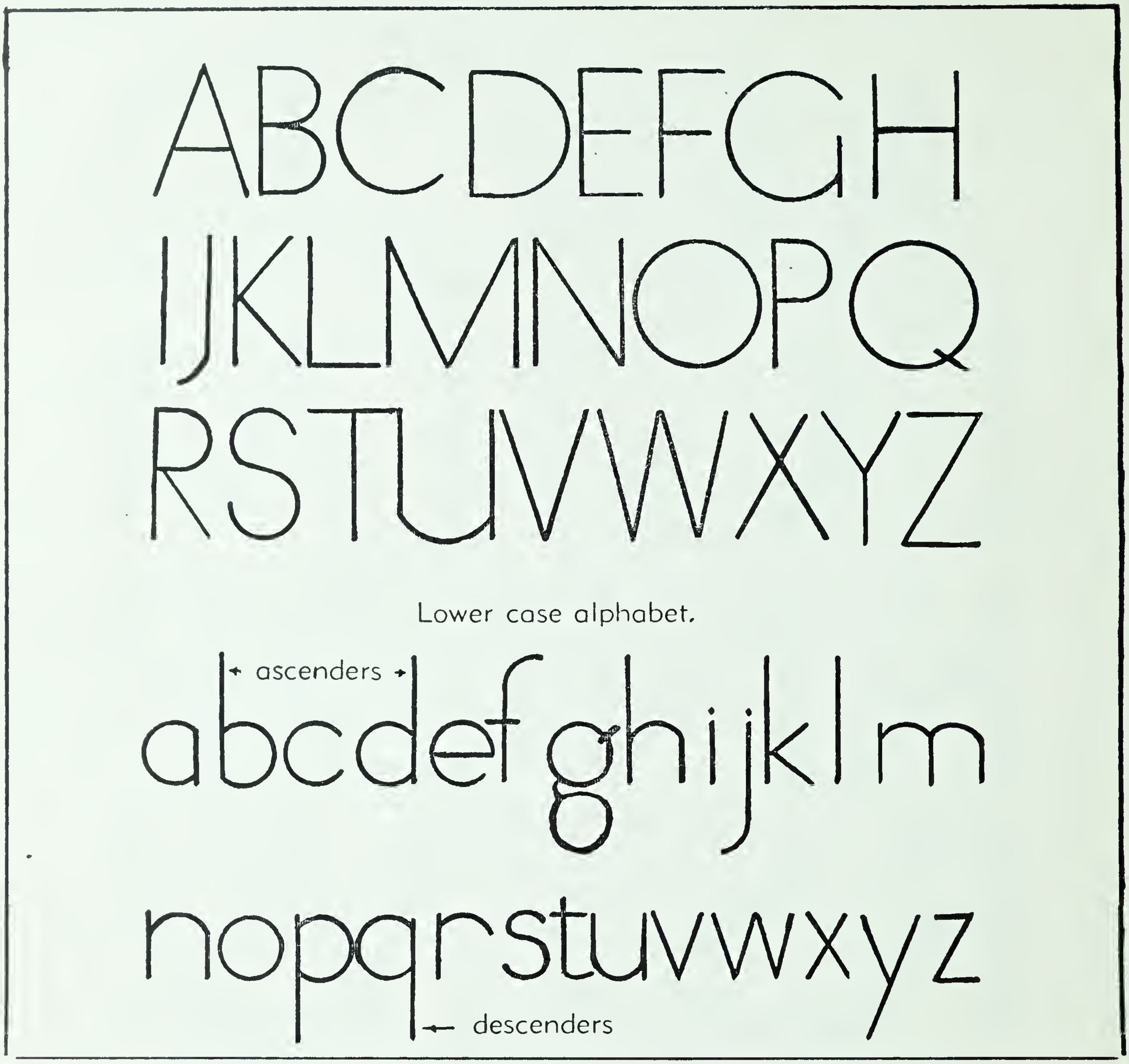
Roman 114 A.D. Gothic Lombardic Italic Modern



Classic Roman capitals from Trajan's column



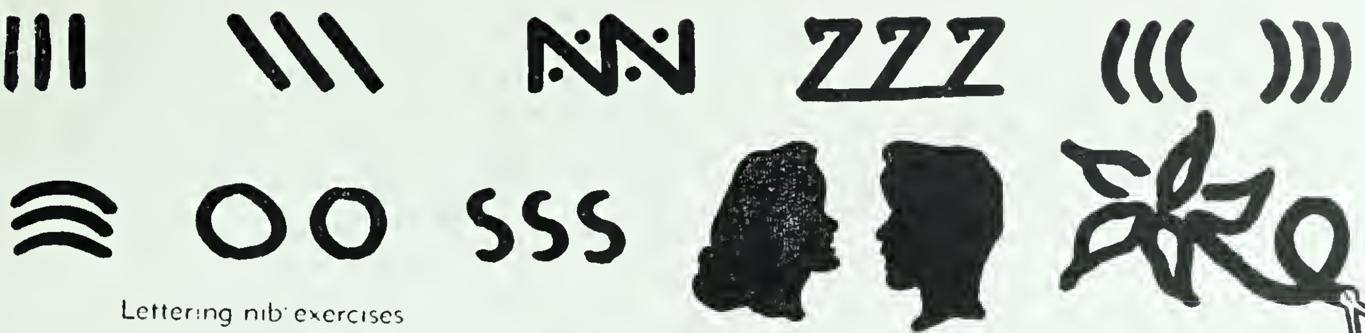
A Gothic alphabet



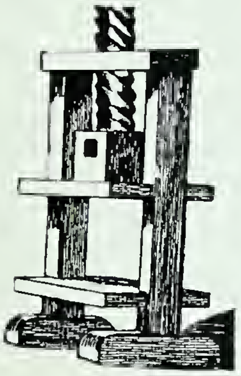
The Lower Case Letters

The formal shape of the Classic Roman was too unwieldy for the scribes and merchants of the Middle Ages, who modified the alphabet so that it could be written more quickly and yet be none the less legible. These cursive or script forms popularized by Alcuin of York are called "lower case letters" by printers because this form of type is found in the lower part of the printing case. Note that the letters are still constructed on the basis of the straight line and circle. Note, too, the relative height of the ascenders and descenders—the portions of the letter above and below the line, and the position of the cross bar of the "t" and "f"; also observe that the terminal end of the "j" curves slightly. Practise making a lower case alphabet.

The flexibility of the quill, or the reed pen, together with the mediaeval fondness for decoration, produced the Black or Gothic Alphabet. This form is used ornamentally for monograms, for wood carving, and leather decoration.



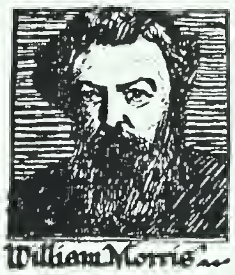
Lettering nib exercises

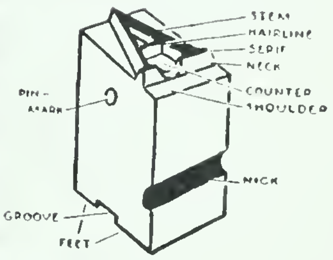


Medieval printing press

WILLIAM CAXTON

Johannes Gutenberg





Printing type

The Ball-Pointed Lettering Nib

The most commonly used lettering tool in schools is the ball-pointed pen nib. Most school supply companies or stationers can supply you with a number of different kinds and shapes.

Students using these lettering nibs for the first time should be cautioned:

1. To dip the nib more than half way into the ink so that the reservoir is filled.
2. To remove the surplus ink by drawing the nib across the edge of the mouth of the bottle.
3. To keep the marking portion of the nib flat on paper while making a stroke.
4. To rest the nib a moment at the end of each stroke.
5. To clean the nib under running water, and dry it with a soft cloth before putting it away.

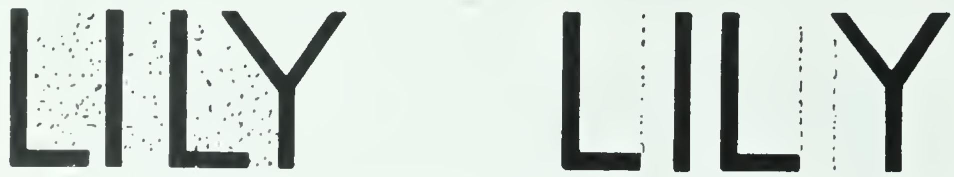
The student may become familiar with the use of the pen by practising the exercises on the opposite page on ruled foolscap—drawing lines for lettering nib exercises is a waste of time.

Printing

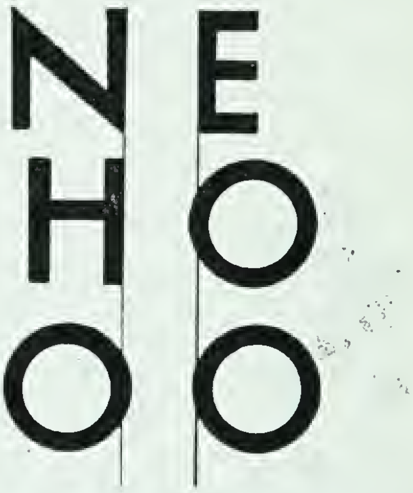
It was about 1440 A.D. that Gutenberg, of Mainz, Germany, made his important contribution to civilization. He, truly, is the "Father of Printing". Not only did he conceive the idea of movable type (an idea anticipated by the Chinese many centuries before), but he put the idea into practice. He made little metal blocks, all the same size and shape, on whose upper surface a smooth letter could be raised. He solved the problem of assembling the individual type pieces into line; he invented a printing ink that would adhere to the metal surface of the type; and, then, he fashioned a press that would utilize all these inventions.

William Caxton studied the craft of printing in Flanders. On his return to England he set up the first printing press at Westminster. "The Dictes and Sayings of Philosophers" was probably the first book printed in the British Isles.

SPACING

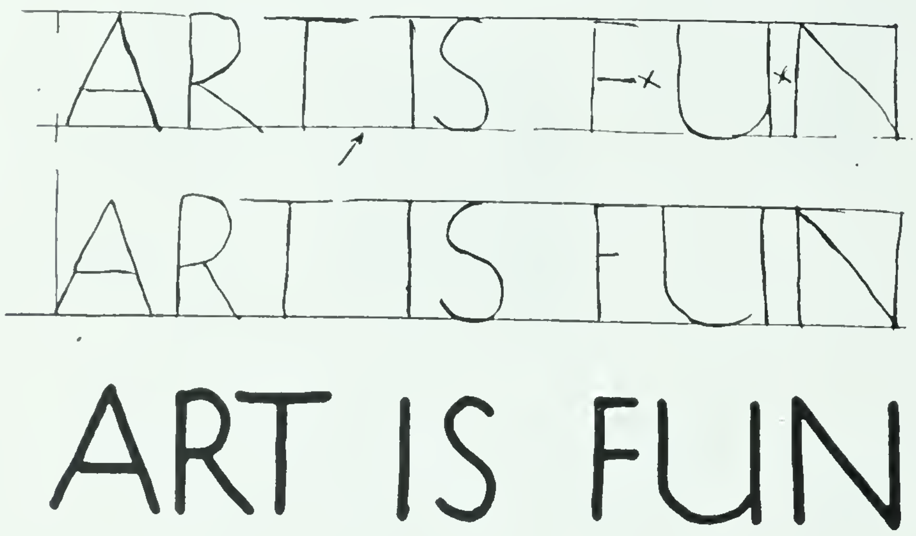


Use your eye and not the ruler to determine the amount of space to be left between letters.

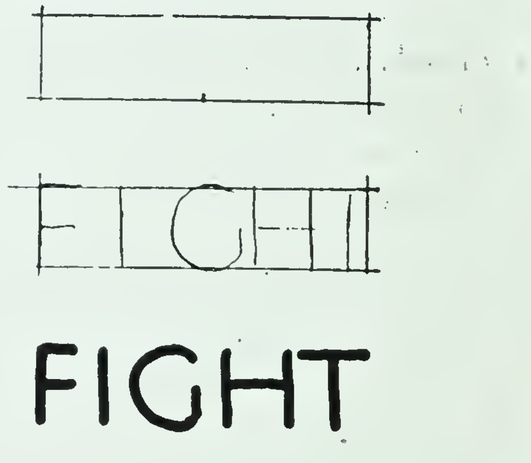


How adjacent letters affect spacing

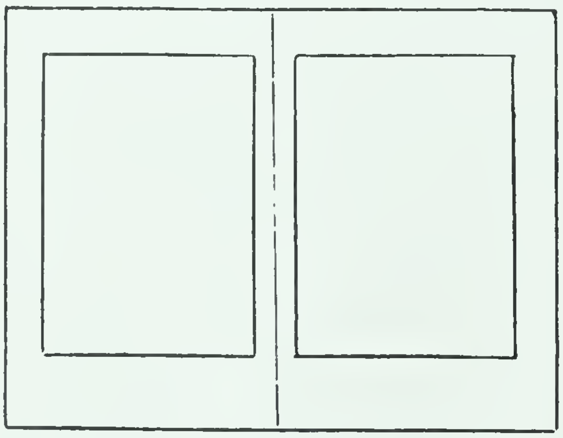
ART IS FUN—8 Letters



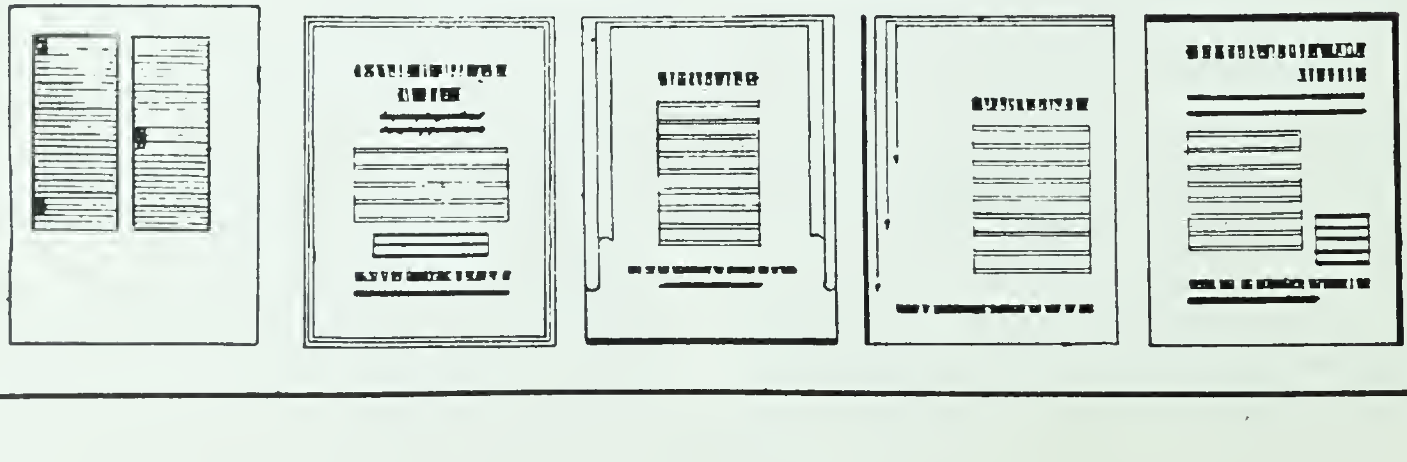
Spacing within a word



Spacing within a page



Margins in an open book



A host of famous craftsmen have contrived to keep printing as a fine art. Consult your Encyclopaedia for information on Caslon, Bodoni, William Morris, Eric Gill, and Goudy for additional information.

SPACING

Good spacing is a matter of judgment and appearance; it cannot be attained by the use of a ruler. Poor spacing may result in improper interpretation, e.g. NOSMO KING, for No Smoking, and cause difficulty in reading—Thispenisapoorpen.

The setting out method has been used successfully for a number of years in making students acquainted with the problems connected with spacing.

Within a Word

1. Define the limits within which the word is to be placed.
2. Find the centre of that space: use your eye, not the ruler.
3. Find the middle letter of the word to be spaced, or, if the word has an even number of letters, the space between the two middle letters.
4. The width of the letters will give you the clue as to whether the middle letter should be put at the centre. If this were done for the word—FIGHT—F. and I., the narrow letters, would occupy one half the space, and, G., H., and T. the wide letters, would crowd the remaining half.
5. It can easily be seen and realized that some shifting will have to be done. If the letters are sketched *lightly* at first, they can be erased and shifted from the positions in which they were first placed until the proper spacing is attained.
6. Put the terminal letters in place. The remaining three letters must be so placed that the spaces between all letters *appear* to be the same.
7. Note that adjacent straight letters must be placed further apart; an adjacent straight letter, and a circular one, closer: and two adjacent circular letters even closer, to give an evenness of tone.
8. Use a cardboard cut-out alphabet to practise the arrangement of letters into words.

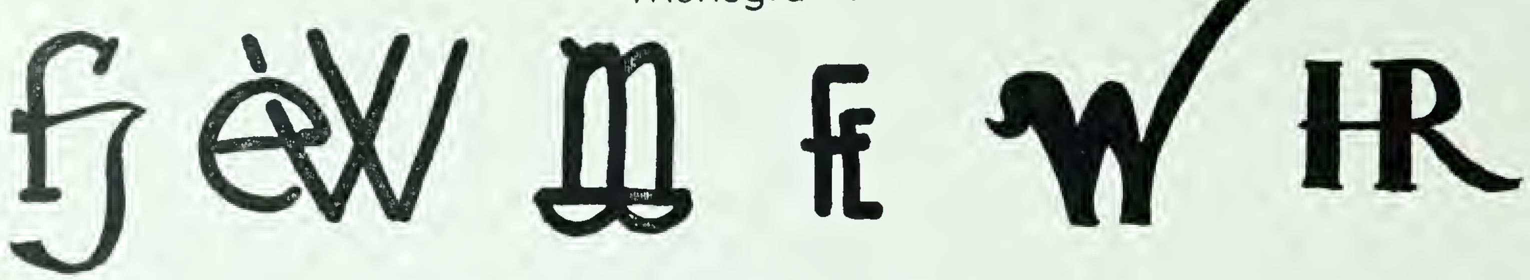
Within a Line

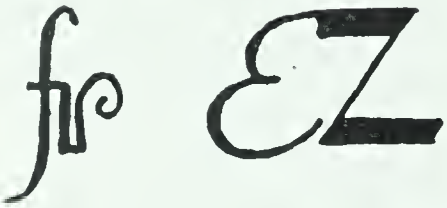
1. Repeat as for spacing within a word.
2. The space between two lines of capitals should be at least one half of the height of the letter O for evenness of tone.

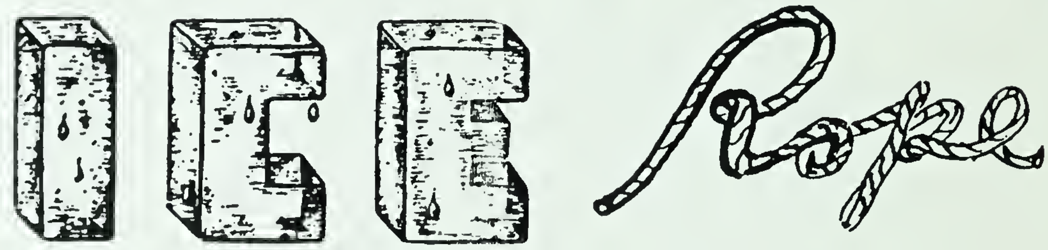
Within a Page

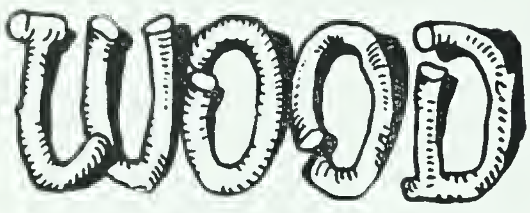
1. The mass of the lettering should harmonize with the page shape. Since pages are generally rectangular, the lettering mass should also be rectangular.
2. The margins are an important consideration in planning the spacing within a page. They are used (1) for appearance—a well-spaced mass is more satisfying to the reader than one whose mass is not at the optical centre, or one in which the lettering runs out to the very edges of the paper; (2) for protection—books ought to be read and re-read. When books were not as common as they are to-day, they were actually worn out by the continued use of readers: a wide margin meant a longer life. Newspapers generally have narrow margins because they are used for a short period and then discarded; (3) to separate one mass of lettering from another as in the double page of an open book. This is treated as a single page so that the margins nearest the stitching are each half the width of the side or top margins. The margin at the foot is always the widest of all to convey to the reader the impression that the mass of lettering is properly supported.
3. Ask the librarian where you can find reproductions of manuscript pages. Note the informal balance in the arrangement of the lettering masses.

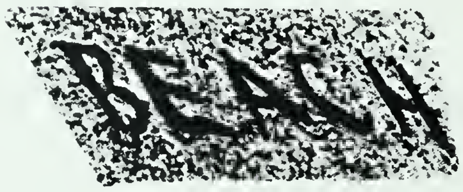
Monograms.



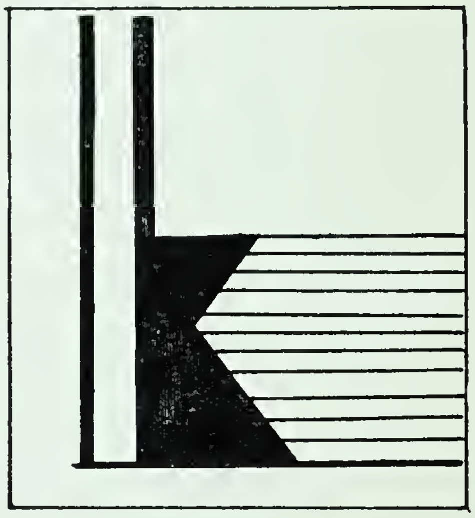




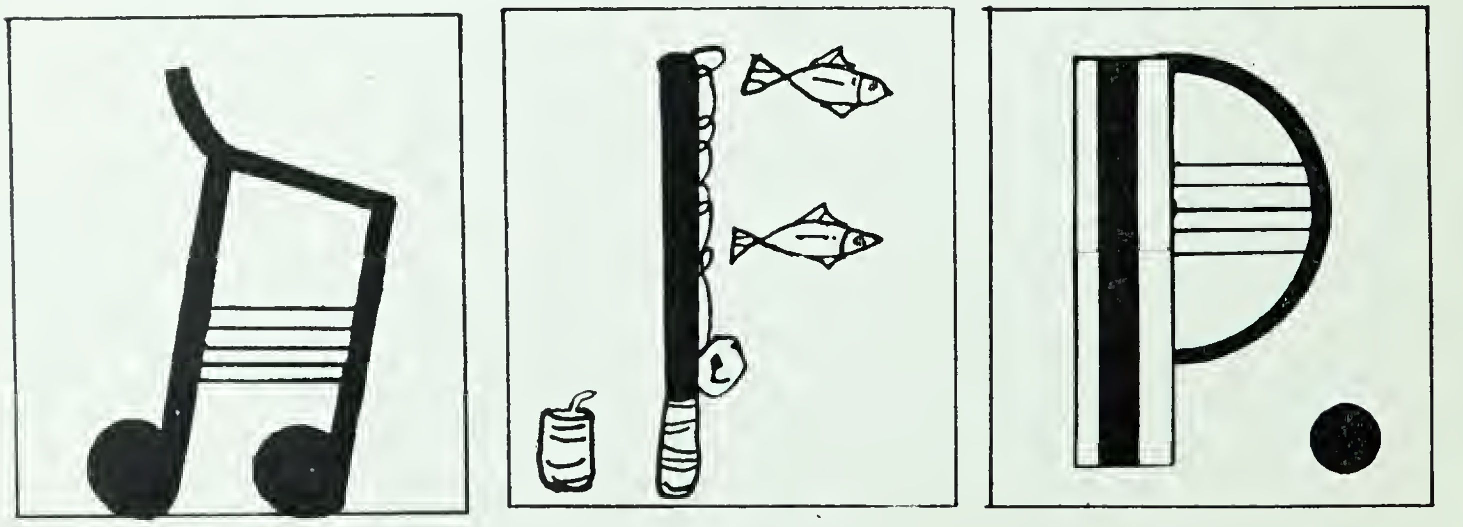




Idea alphabets.



Letters for cover layouts.



MONOGRAMS

Make a monogram by combining your initials using letters from various kinds of alphabets: modify them to fill a particular shape, or change their size to make an interesting arrangement. This monogram can be used for personalized stationery, a decorative unit on book-ends, or be treated as the repeated element in an all-over pattern.

IDEA ALPHABETS

Note how special alphabets have been used to re-inforce an idea. Collect other examples and bring them to class. Plan a cover for a booklet on your favourite sport so that the initial letter of the word plays an important, as well as a meaningful part in the decorative pattern.

QUESTIONS

1. What difference exists between lettering and printing?
2. What care should be taken in the use of a ball-pointed lettering nib?
3. Where are the cross bars placed in the Roman capitals?
4. Why does the O extend slightly beyond the guide lines?
5. For what are Gutenberg and Caxton famous?
6. How can you prove that spacing is a matter for the eye and not the ruler?
7. Make a list of the occasions when a knowledge of lettering will be of use in places other than the Art Room.

ENRICHMENT ACTIVITIES

1. How would your initials be written using an alphabet other than the Roman?
2. Find out how the Chinese characters differ from the individual letters of the Roman alphabet.
3. What is the origin of the word *alphabet*?
4. How many different kinds of type can you find for any one letter in a single magazine?
5. Collect (a) interesting monograms, (b) examples of good and poor spacing.
6. Visit a printer's shop and make a record of your impressions in words and illustrations.
7. Read Chapter I of *The Cloister on the Hearth* for additional information concerning manuscript writing.
8. For an interesting book on this subject which can be read in an hour and a half, get from your library *Black on White* by M. Ilin.
9. Experiment with the use of pattern or colour instead of the solid stroke in capitals. Ideas for such pattern could be in keeping with the meaning of the subject for which the lettering was meant.

LEATHERCRAFT

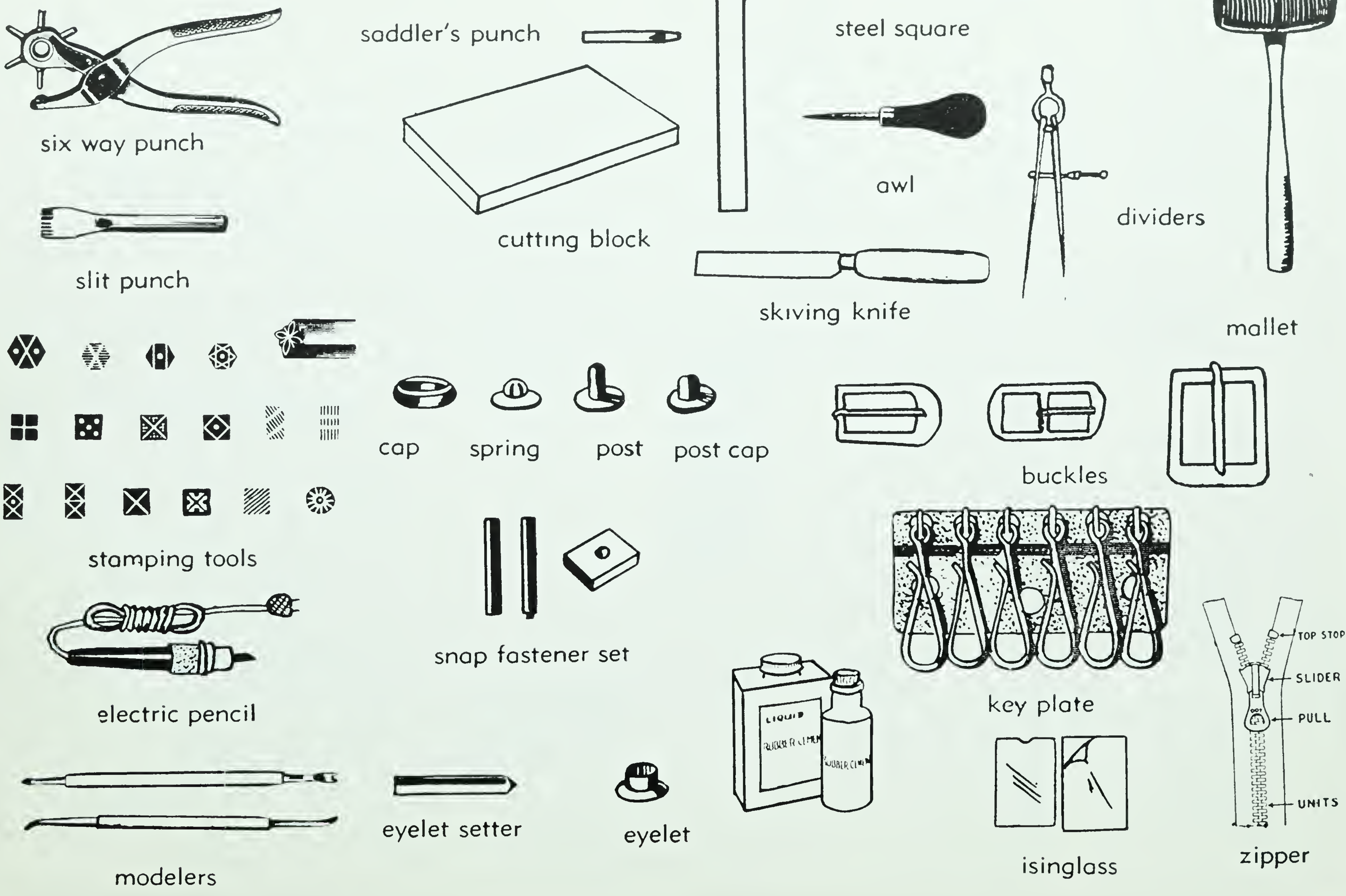
INTRODUCTION

The making of leather is probably one of the oldest crafts of mankind—older than written history itself. Its importance can be seen in the widespread use of the flint scraper among peoples of the Stone Ages.

Leather has been used by man for protection, adornment, and for the purpose of covering or transporting his possessions. The pyramids offer ample records of the importance of the leather industry in ancient Egypt. Our word "pecuniary"—pertaining to money, is derived from the Latin source word—"pecus"—a hide: the Romans greatly valued cattle and their products. Mediaeval people formed special guilds to protect and promote the use of leather as a material for art and industry—the Saddlers, the Skinners, and the Fletchers played an important role in community life.

If we investigate further, we find leather for shoes, leather for clothes, leather for drinking vessels, leather for shields, leather for books, leather for chests, leather for drums, etc. The modern interior decorator recognizing the decorative qualities of leather has successfully used it for draperies, lamps, lampshades, and even for wall coverings. These are only a few ways in which man has made use of leather in his journey from the cave to the skyscraper.

LEATHERCRAFT—TOOLS AND SUPPLIES



HOW TO USE THE TOOLS AND SUPPLIES

Six way punch—used to make holes for lacing.

Saddler's punch—used to make holes for lacing in places that cannot be reached by the six way punch.

Cutting board—used as a surface upon which the leather is placed when it is being cut with a knife.

Steel square—used as a guide in making and cutting straight edges and right angles.

Skiving knife—used to shave the edges of thick leather so that when two pieces are laced together the edges will be thinner. This will improve the appearance of the finished article.

Awl or Ice-pick—used to enlarge lacing holes —particularly at corners. It can be used as a stippler in an emergency.

Dividers—used to mark location of the lacing holes.

Mallet—used to drive stamping tools (metal hammers will mushroom the tops), and flatten the laced edges.

Snap fastener set—used to attach snap fasteners to the leather. A hole is punched in the leather. The cap is placed in the depression of the anvil, the spring is inserted through the punched hole, which in turn is placed over the cap. The spring is joined to the cap by using tool A. See diagram for Change Purse. A similar method is employed, but here tool B. is used, to join the post and the post cap together.

Eyelet setter—used to spread eyelets which have been inserted through a punched hole. See diagram in Key Case to illustrate how the eyelet setter and eyelets attach the key plate to the leather cover.

Modelers—are used to decorate the surface of the leather.

Stamping tools—are used to decorate the surface of the leather by providing a texture, a background, or a patterned line.

Electric pencil—used to burn a decorative pattern on the surface of the leather.

Accessories—snap fastener parts—the caps come in various colours and sizes.

Buckles—can be supplied in various sizes.

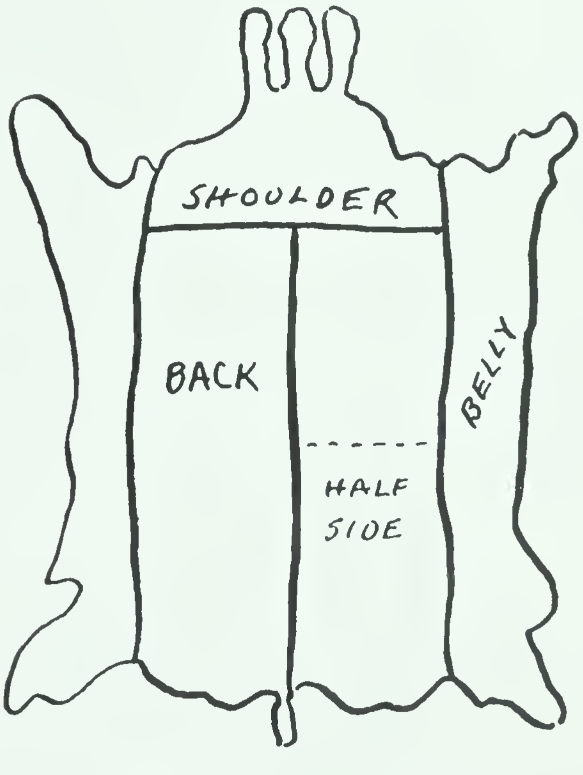
Key plates—have provision for 2, 4, or 6 keys.

Rubber cement—used in holding two edges together during lacing; used also in appliqué work.

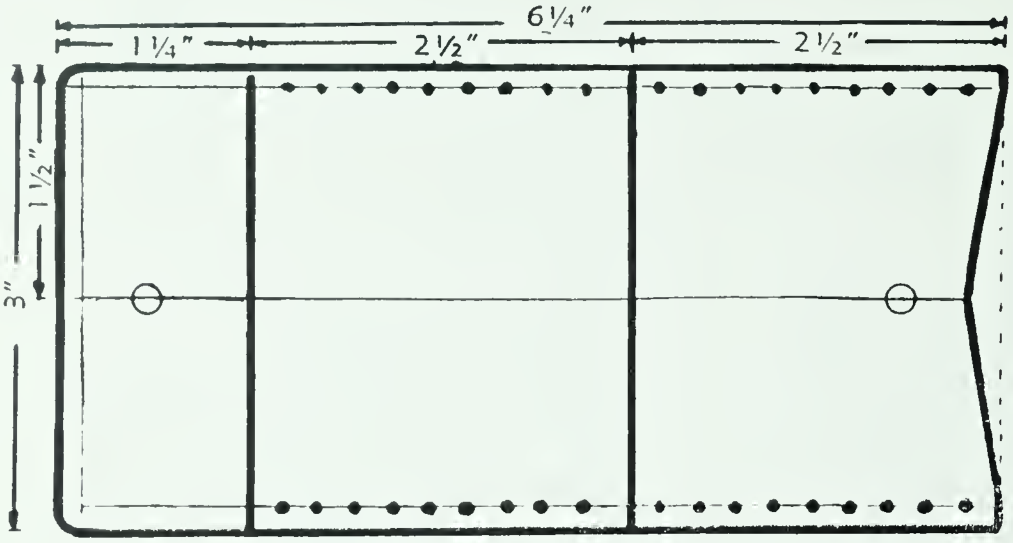
Saddler's soap—used to clean the surface of soiled leather.

Isinglass—used to cover identification cards in wallets, and pictures in picture frames.

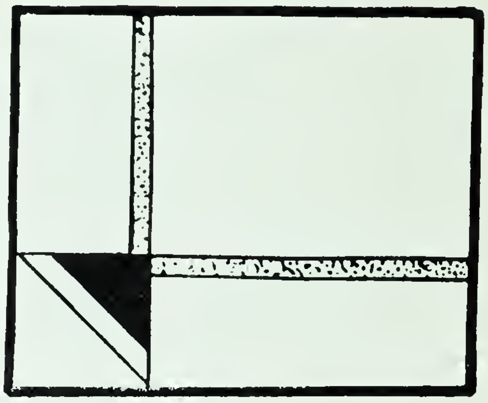
Zippers—used to fasten key cases, wallets, etc. Complete instructions for attaching zippers are always supplied by the manufacturers.



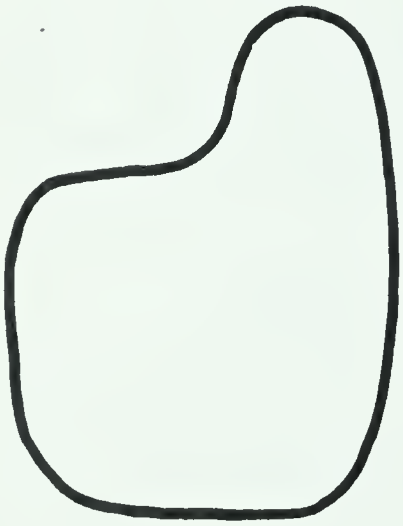
HIDE OF LEATHER

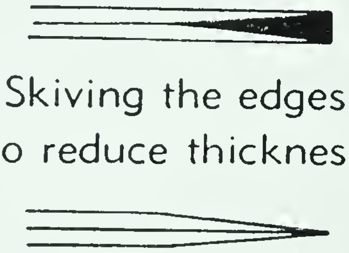


Change purse—pattern

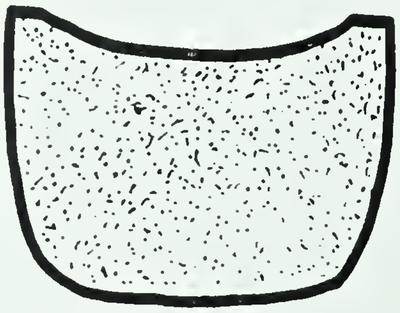


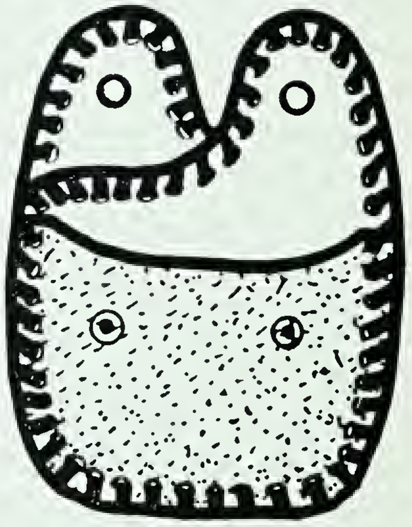
Decoration planned
for back surface



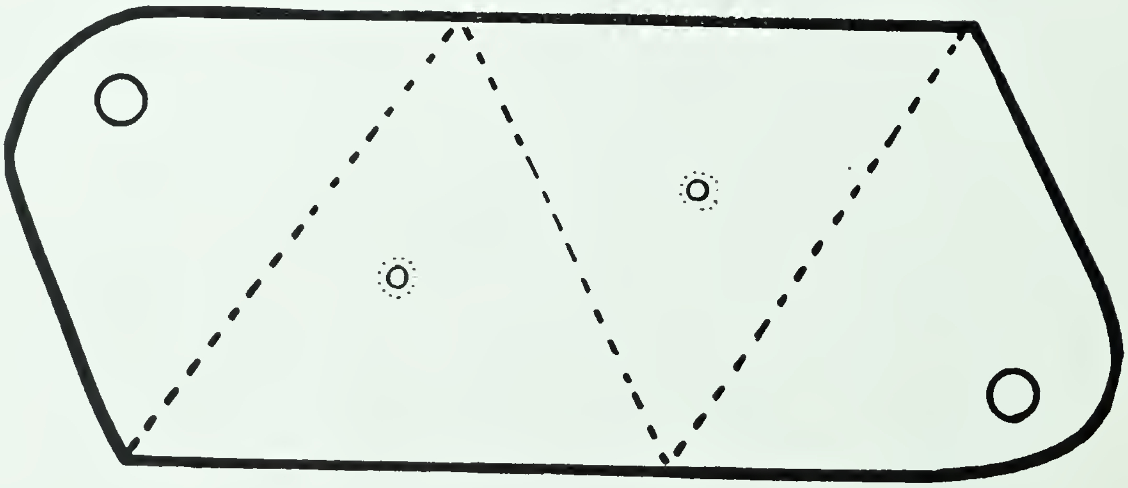


Skiving the edges
to reduce thickness





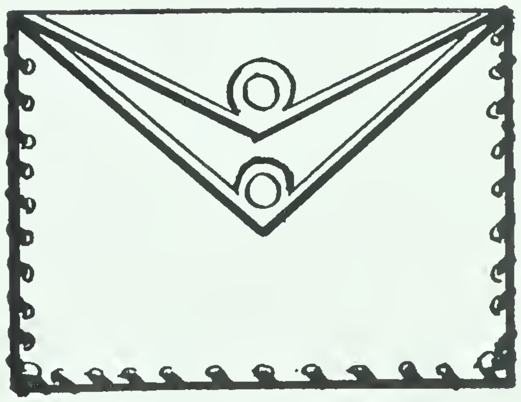
Pattern for two-pocket change purse



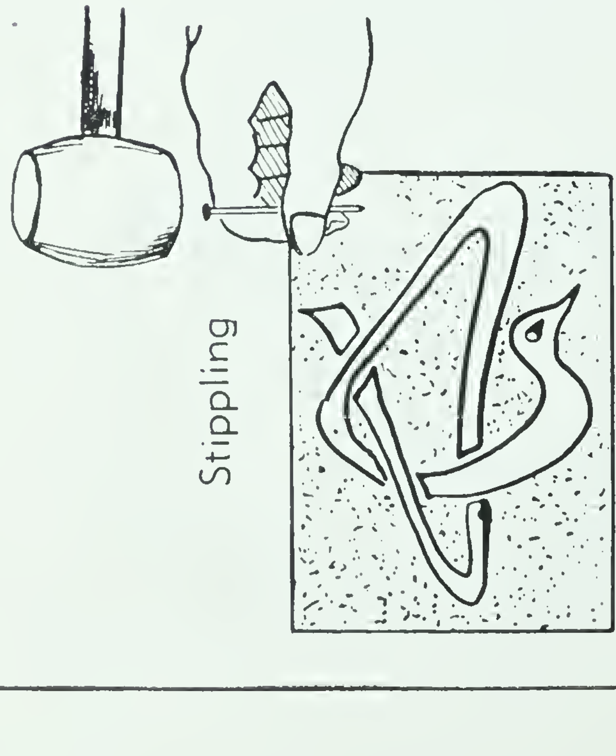
Change Purse

Materials required—Piece of leather 8″ x 3″, preferably natural cowhide or calfskin, modeler, sponge, punch, coloured pencil, thonging, knife, cardboard, steel square, cutting board.

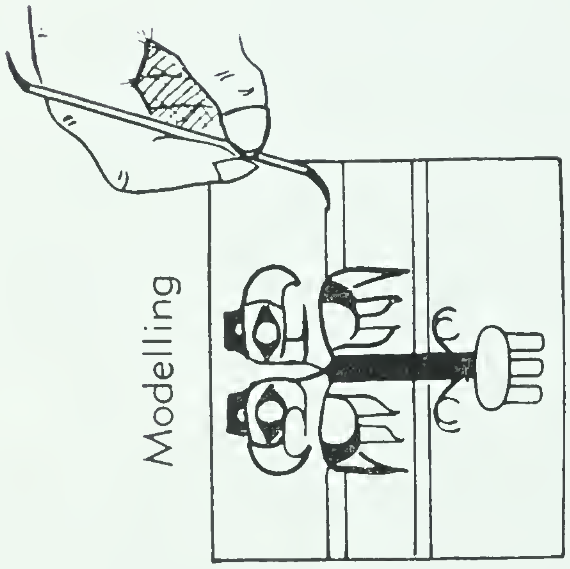
1. All planning for leather-made articles must be done in advance on cardboard. The patterns must be made with the utmost accuracy. Separate patterns should be made for each section of the completed project. A trial assembly should be made for accuracy and proportion before starting to work on leather. In all patterns, remember to allow for folds—the thickness of the leather being used as a guide.
2. To transfer the pattern shapes to the leather use a coloured pencil to mark the outline on the unfinished or flesh side of the skin. Use leather to its best advantage—do not cut out material from the centre of the piece.
3. Unless the leather is very thin, always use a sharp *knife* to cut it. If you follow the instructions given below, you will avoid fuzzy edges.
   a. Place skin, finished side down, on the cutting board.
   b. Use the inner edge of the steel square when cutting straight lines.
   c. Press the point of the knife completely through the leather.
   d. Using the steel edge as a guide, slowly draw the knife towards the body so that a single cut will be sufficient: this will leave a clean edge.
4. Locate lacing holes by means of dividers, 1/8″ from the edge, and the distance of the width of the hole apart. The holes punched should be large enough to accommodate the width of lacing used. Holes at corners of the project should be larger than the size used along the edge, because lacing going round a corner passes through the corner hole more times than it does in the ordinary lacing of the edges. See diagram, page 110.
5. Wherever two or more thicknesses of leather are to be placed side by side, a portion of the edge of each piece is shaved away—"skived"—so that the edge of the completed article will not be too thick. See diagram.
6. Make an appropriate decorative pattern. Enlarge or reduce it to fit the area to be filled. See that the space to be decorated is neither too crowded by the inclusion of too much detail, nor left empty by having isolated and unrelated units.
7. Use a sponge to moisten the leather in preparation for decoration. Practise on a scrap of the leather to be used to determine the amount of moisture necessary. If water oozes out from the leather under pressure, it is too wet; leather should be damp, not wet.
8. Attach the pattern to the finished side of the leather with paper clips to prevent it from slipping and place both on the cutting board. Using the modeler, press firmly on the lines of the pattern to transfer the outline to the leather. Before removing the cardboard, make sure that all portions of the pattern have been traced.
9. *Tooling methods—*
   a. *Flat*—This simply consists of pressing down the lines of the pattern with either the pointed or spoon end of the modeler, so that the line is engraved. Several repetitions may be required



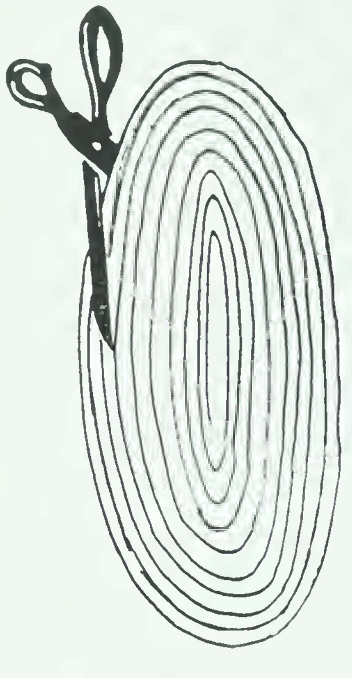
Two-pocket change purse



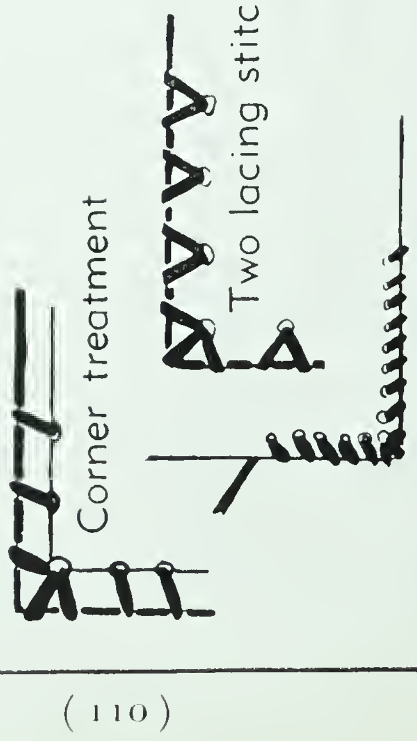
Stippling



Modelling

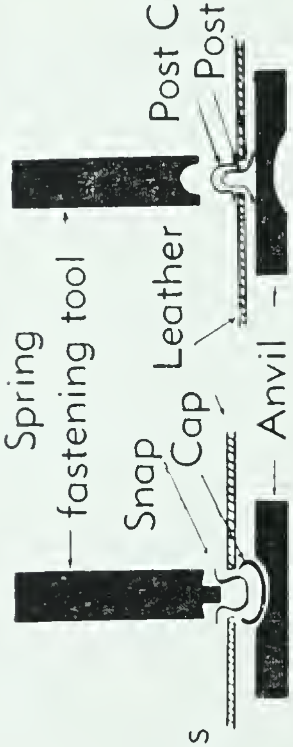


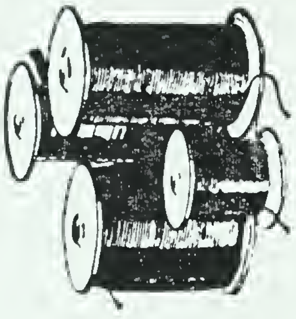
How to make lacing



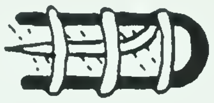
Corner treatment

Two lacing stitches

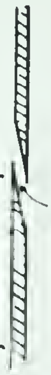




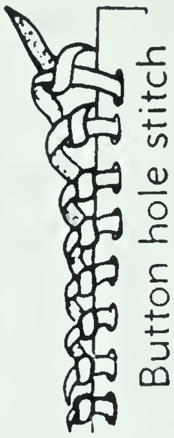
Machine cut lacing



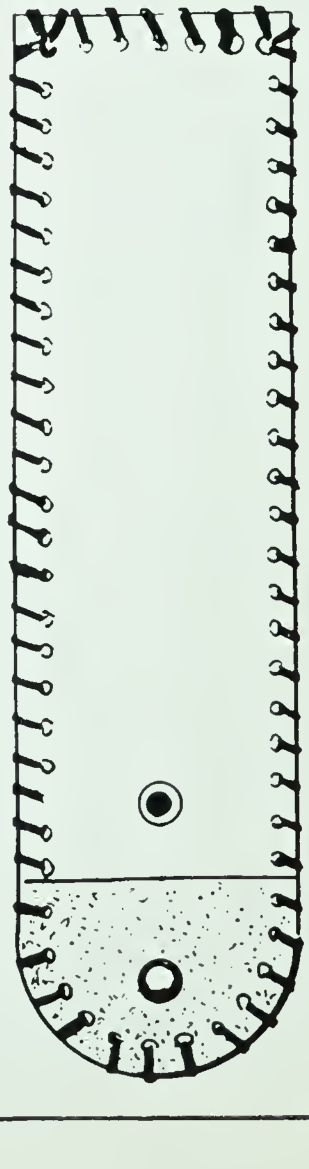
How to begin lacing



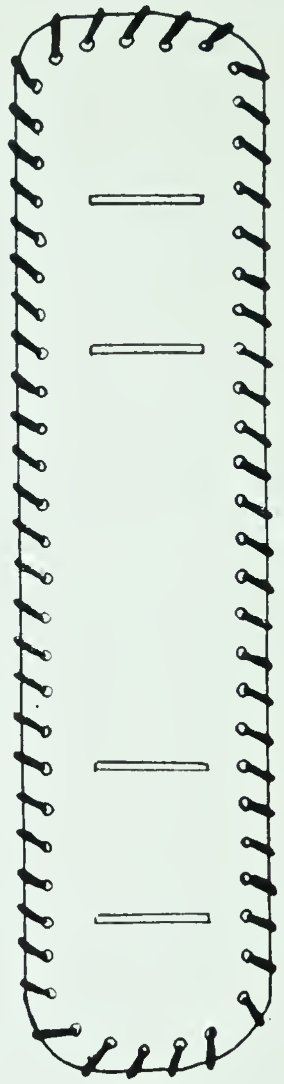
How to join two pieces of lacing



Button hole stitch



Comb case



Wrist watch band

before the desired depth is reached. The pointed end will give a sharp, narrow outline, the spoon end a bevelled edge.

b. *Blind*—Here the background is stippled so that its texture will differ from that of the pattern, giving the pattern a raised appearance.

10. Note diagrams for method of attaching dome fasteners.
11. Leather supply companies can furnish goatskin lacing, or leatherette in various lengths, widths and colours. However, you can make your own lacing by spirally cutting a piece of soft leather. See diagram.
12. Lacing should be pointed to speed up the operation of binding the two pieces of leather together. The length required will be at least two and a half times the outer dimensions of the article being made. Begin in some inconspicuous corner and lace article with either of the two stitches shown.

COMB CASE

To make a comb case, use the method outlined for Change Purse allowing for differences in length and width.

WRIST WATCH BANDS

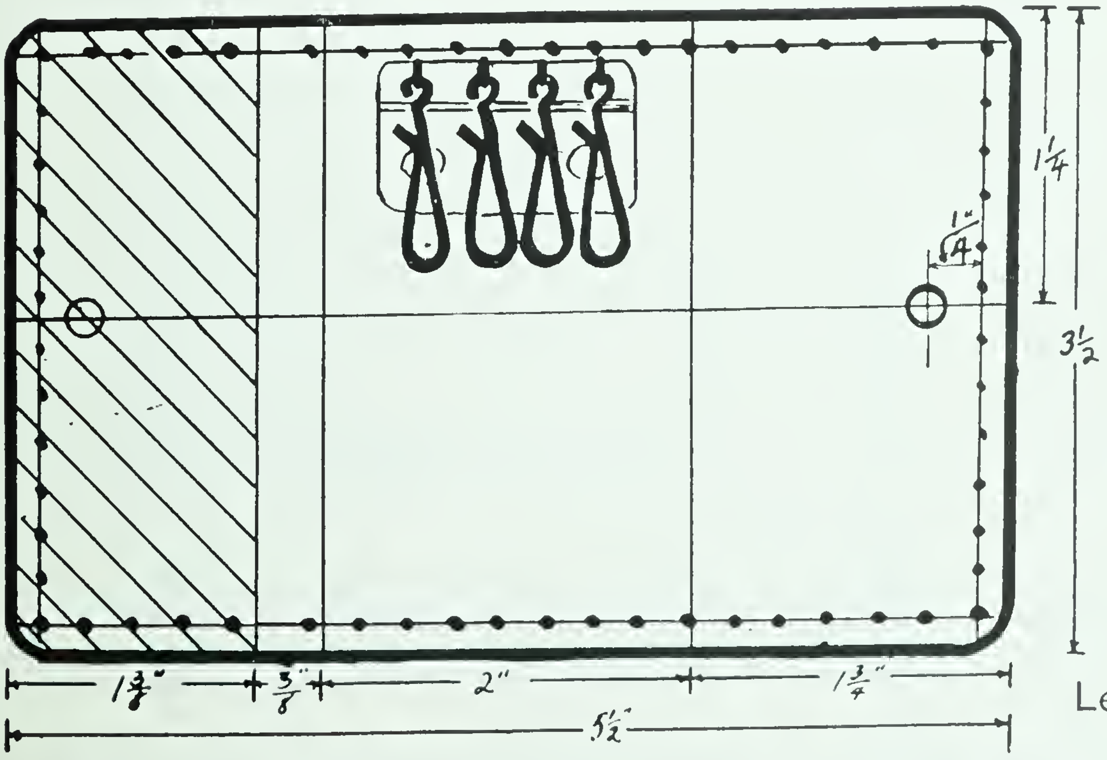
Wrist watch bands have been a very popular project in summer camps and rehabilitation centres. One piece of leather is required, the length and width varied to suit the taste of the wearer, with holes punched for edge lacing. Here is an opportunity to try out some decorative lacing methods. Cut slits for the watch strap as indicated in the diagram.

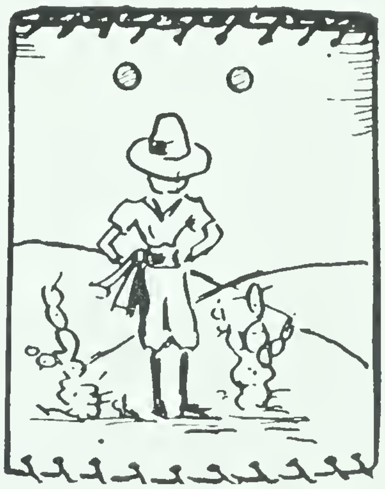
KEY CASE

Materials required1 piece of leather 5½″ x 3½″, punch, key plate, eyelets, eyelet spreader, dome fasteners, dome fastener set thonging, electric pencil, dividers.

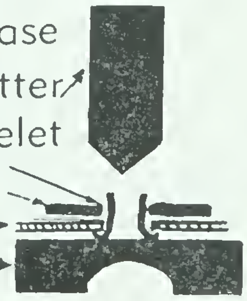
1. Cut cardboard pattern as shown in diagram.
2. Mark location for eyelets to hold key plate, and location for dome fasteners.
3. Punch holes for lacing. It might be convenient at this point to add a pocket to the key case (see shaded portion): this is an optional step. Decorate the face side of the leather using the electric pencil.
4. Attach the key plate to the leather by means of eyelets. See diagram.
5. Attach dome fasteners.
6. Complete lacing.

Key case

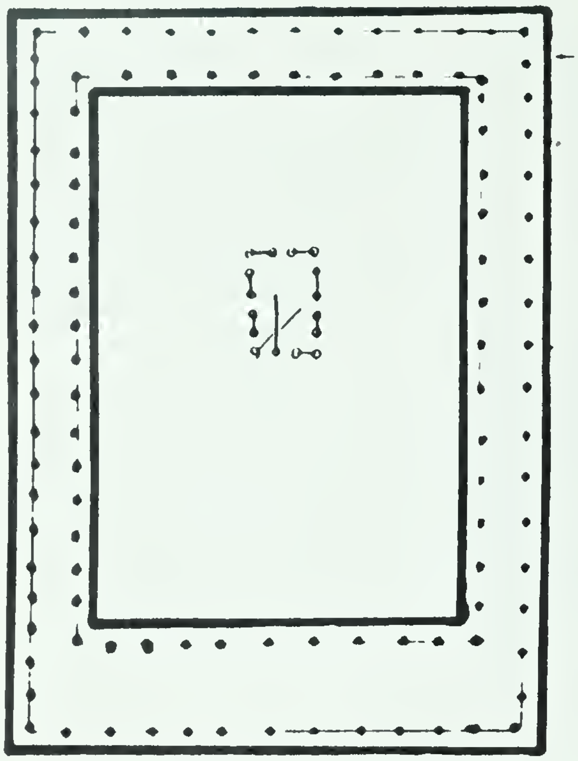


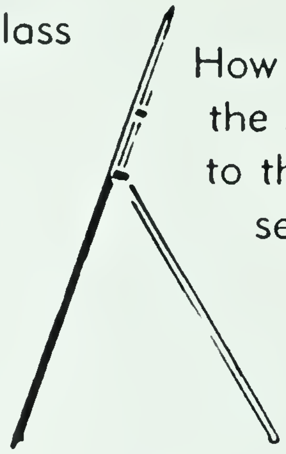


Decoration for back of key case

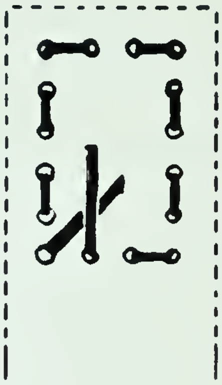


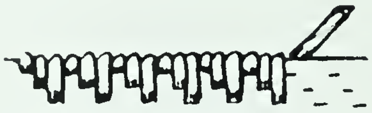
How to attach eyelets



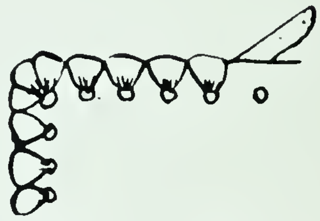


How to attach the support to the back section



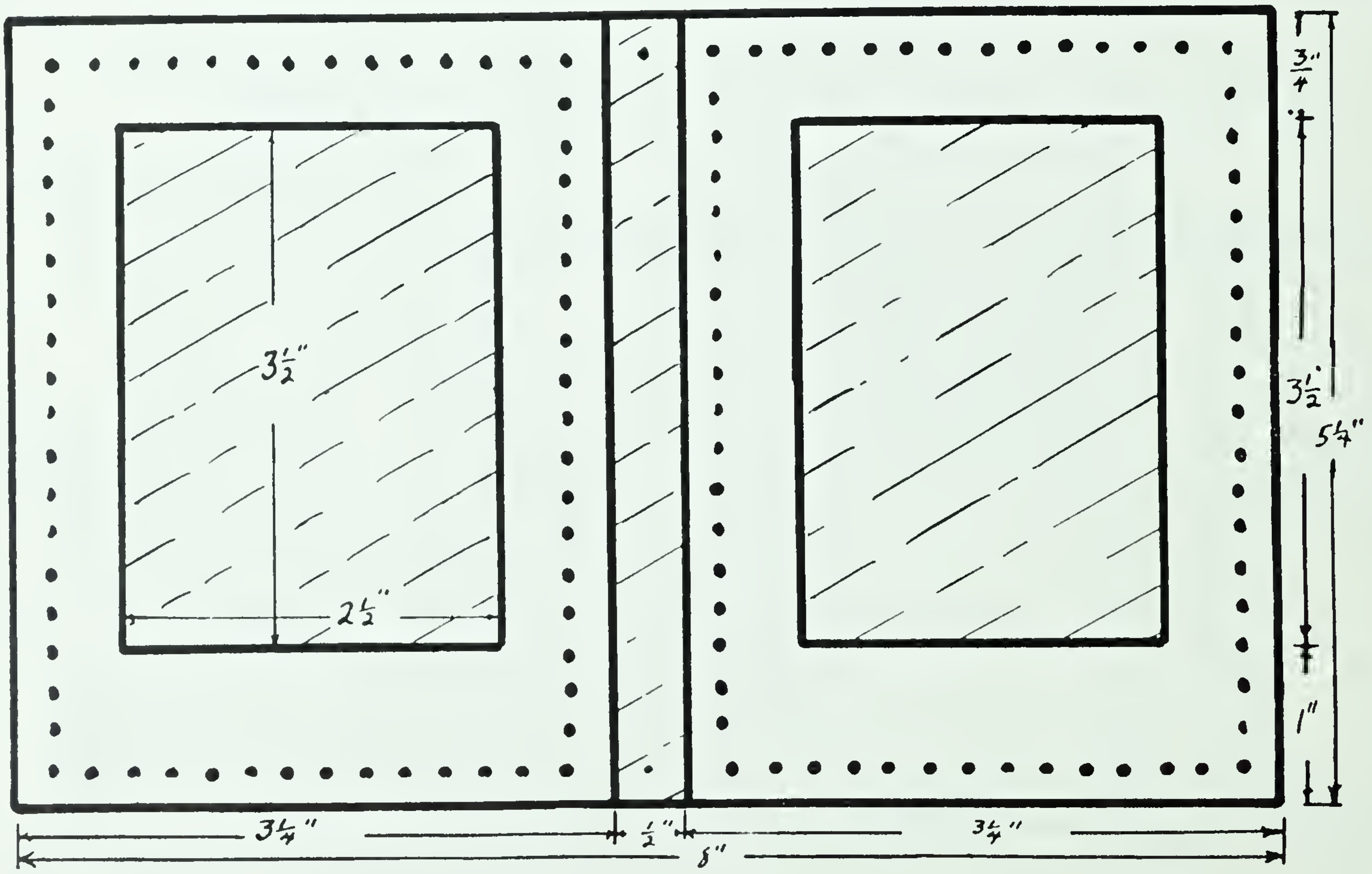


Alternate lacing method



Wide lacing makes an effective edge: the lacing should be wider than half the distance between two adjacent holes.

Folding snapshot frame



STANDING PICTURE FRAME

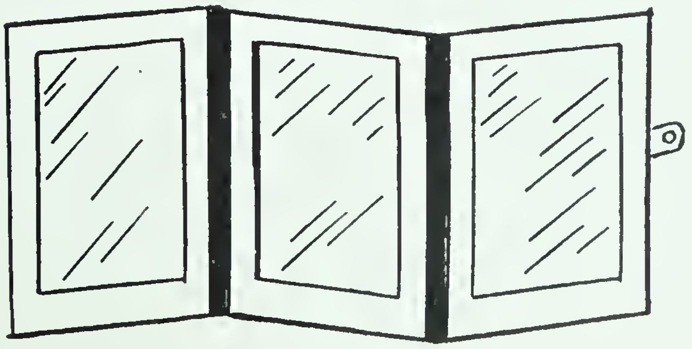
Materials required—3 pieces of leather, two of them 6½″ x 9½″, the other 1″ x 11″, knife, isinglass, lacing, modeler, cardboard, paper clips.

1. Make cardboard patterns for each part; transfer patterns to flesh side of the leather; cut out parts; skive edges of the frame and back sections.
2. Punch holes in the frame as indicated in pattern. Place punched frame, finished side up, over flesh side of back section and fasten it with paper clips to prevent slipping. Use holes punched in the frame to mark location of holes in the back. Punch holes in the back section of the frame.
3. Locate points in the back for attaching the support. Punch holes.
4. Fold length of leather that is to act as support as shown in the diagram and lace sides together. See diagram.
5. Lace support to back of frame as shown in diagram.
6. Cut slit at back as indicated to allow for insertion and removal of picture. Punch holes at the end of slit to prevent ripping.
7. Cut isinglass ½″ wider and longer than the opening in the frame section and cement it over the opening.
8. Lace frame to the back, inserting a sheet of cardboard for stiffening purposes.

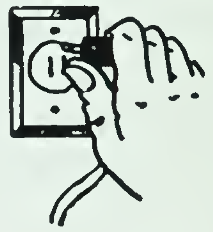
FOLDING SNAPSHOT FRAME

Materials required—1 piece of leather 8″ x 5¼″, 2 pieces 3¼″ x 5¼″, knife, punch, islinglass, lacing, modeler, stamping tools, sponge, paper clips, mallet.

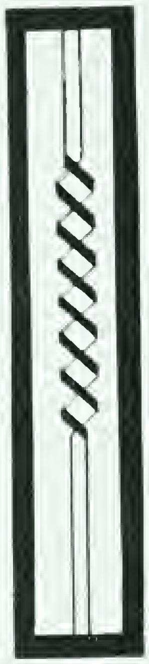
1. Make cardboard patterns for each part; transfer patterns to flesh side of leather; cut out parts; skive outer edges of frames and back sections.
2. Punch holes in the frame as indicated in the pattern. Line up *outer* edges of frame with *outer* edges of back: fasten them together with paper clips. Use the holes punched in the frame, finished side up, to mark location of the holes to be punched in the back, flesh side up. Punch holes. Do not neglect the holes in the fold.
3. Transfer the previously made surface pattern to the finished surface side of the back section. Use metal stamping tools (or wooden stamps made from dowel) in some part of the decoration. Make sure the surface to be stamped is damp, not wet. Hold the stamping tool upright in position and strike it sharply with a mallet (a hammer will mushroom the head of the stamping tool) so that a clear and permanent impression is made in the leather. This method of decoration is used extensively by Mexican craftsmen.
4. Line the flesh surface of the back portion with moiré (watered silk) by cutting a piece of the material ½″ longer and wider than the back section. Crease the moiré to the exact size and cement into position.
5. Attach frames to the back by means of paper clips after the sides have been squared up.
6. Lace those sides of the frame that will remain open, beginning one hole away from the upper edge and finishing one hole before the lower edge.
7. Lace the frame to the back to complete project. Should you wish to attach a new lace, skive the opposite sides of the used end and the new end and cement them together.



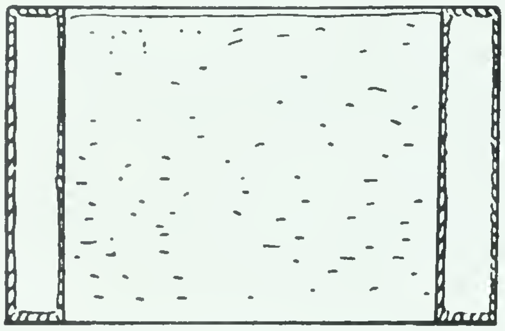
Electric pencil



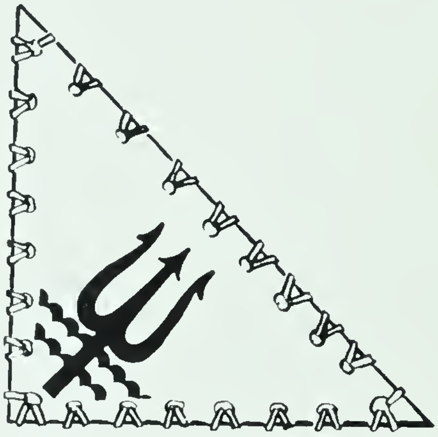
Plug in to heat electric pencil



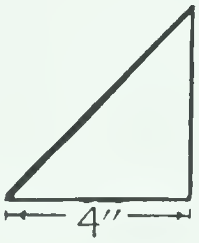
Burnt decoration



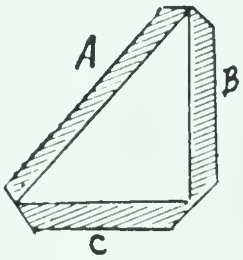
Desk blotter pad



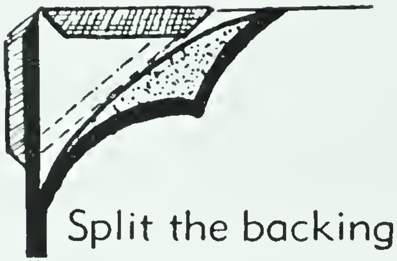
Laced blotter corner



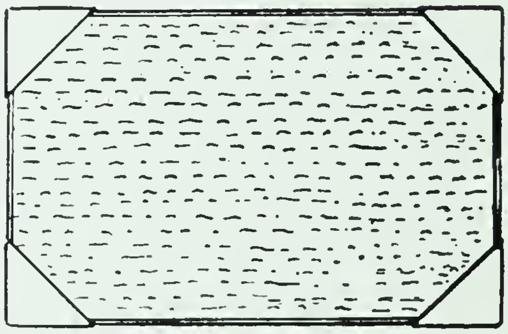
Cardboard backing

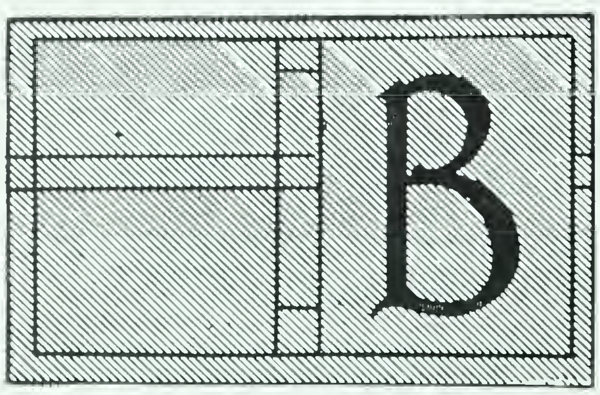


Leather pattern
A—top flap
B & C—flaps

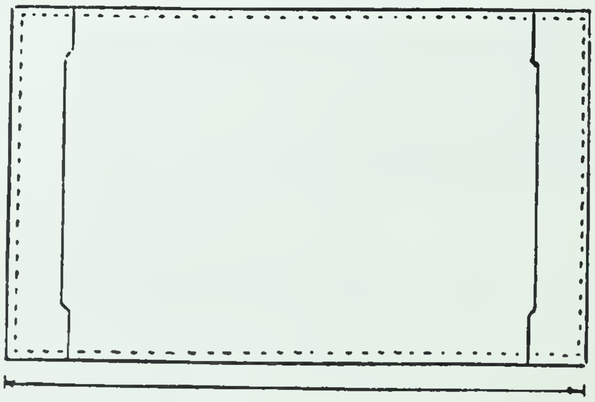


Split the backing to cement the flaps into position.

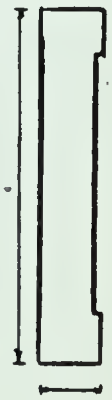




Decorated book cover



Inside view—14″ x 9″



Book flap—2½″ x 9

How to Use the Electric Pencil

1. Plug into electric light socket or wall receptacle.
2. Wait until the tip of the pencil is hot enough for burning. This can be determined by using the pencil on a similar piece of scrap leather.
3. It is not necessary to use pressure to get dark lines. This effect is obtained by holding the pencil a little longer in any one spot.
4. To get fine lines, use the very tip of the point; for broad lines, use the flat portion. For shading use a combination of light and dark lines.
5. It is a good idea to practice using the pencil on scrap leather before starting to decorate a completed project.
6. When using gold, silver or coloured foil, place the strip, dull surface next to the leather. Use the electric pencil as above allowing for sufficient time to fuse the metal from the paper backing to the area being decorated.

Blotter Pad

Materials required—1 piece of heavy bookboard 19″ x 12″, 4½ yds. of lacing, 2 pieces of leather, 12″ x 2½″, punch, knife, dividers, steel square.

1. Cut book board to required length.
2. Cut leather pieces to required length.
3. On the flesh side of the leather use dividers to mark holes for lacing ¼″ from the edges and half an inch apart. Punch holes.
4. Square up the leather with one end of the bookboard. With the finished side uppermost, mark the location of the lacing holes in the bookboard. Repeat for other end. Locate holes for lacing along the long sides, ½″ apart. Punch holes at spots marked.
5. Transfer previously made decoration to the finished side of the leather. The surface might be decorated by modelling, stamping or burning.
6. Lace ends to the bookboard by the over and over stitch.

Blotter Corner (Type I)

This is made by lacing the two triangles of leather together on two sides and the lacing is continued on the upper piece only, to permit insertion of the blotter.

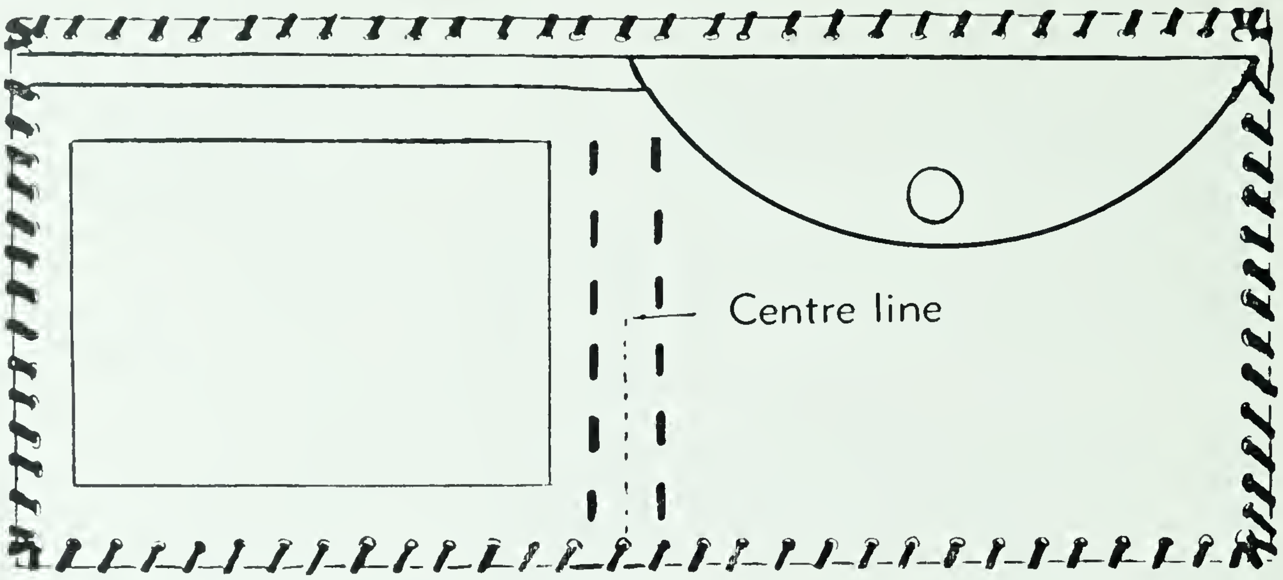
Blotter Corner (Type II)

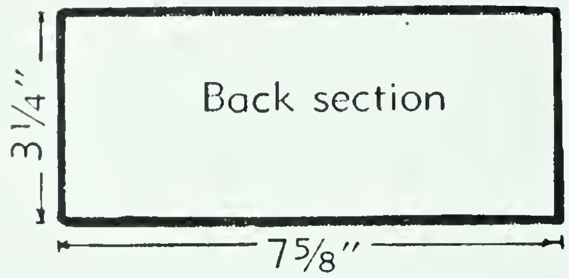
1. Cut the cardboard and leather pattern as shown in diagram.
2. Cut four pieces of cardboard and four pieces of leather.
3. Centre the cardboard on the leather and cement the top flap back.
4. Split the bookboard base at the corners.
5. Square up the leather covered cardboard with the bookboard at the corners and cement flap into position. Repeat for other flap.
6. Cement split portion of the bookboard back into place to leave a finished back.

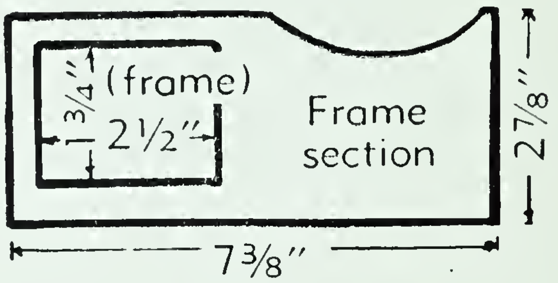
Book Cover

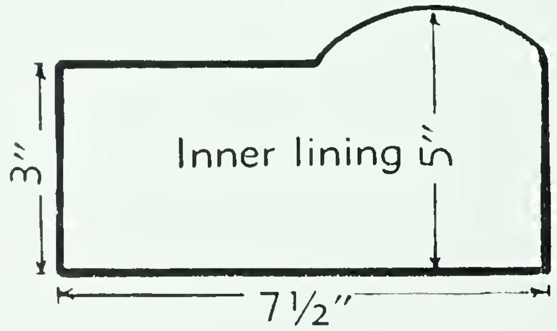
Materials required—1 piece of leather 14″ x 9″, a piece of taffeta for lining 21″ x 9½″, rubber cement, knife, scissors, punch, modeler, stamping tools, sponge, paper clips, dividers, cardboard.

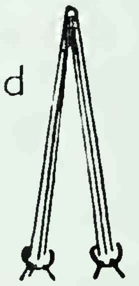
1. Plan your motif to cover one of three areas, front cover, end, or back cover or use an all-over pattern.
2. Make cardboard pattern; transfer pattern to the flesh side of the leather; skive edges; cut out leather from the pattern; decorate the surface.
3. Spread lining over the unfinished side of the leather so that ¼″ projects on all sides. Spread rubber cement over surface of the leather leaving it exposed until it becomes tacky. Smooth lining out and remove all air bubbles before the cement dries. When dry, trim the lining with sharp scissors to square with the edge of the leather.
4. Cover cardboard pockets with taffeta folding and cement the excess material under on the under side.
5. Mark location of holes for lacing at points indicated in the pattern.





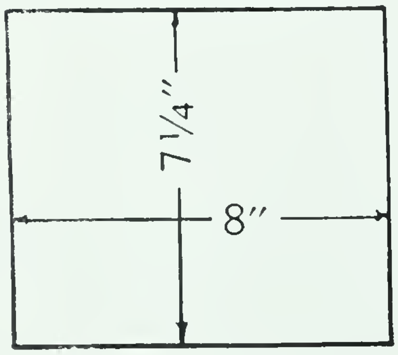




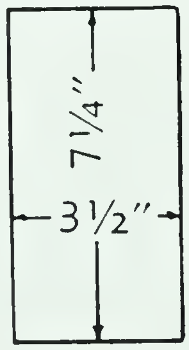


Folded sections fastened with paper clips

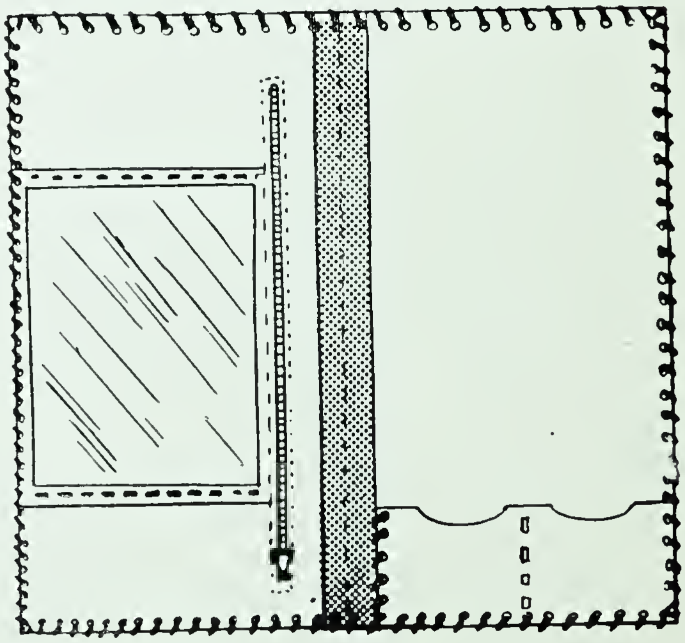
Back section



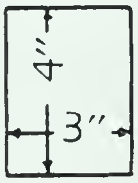
Side section (2)



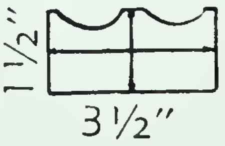
Breast pocket wallet



Frame



Stamp section



6. Punch holes through the leather and lining and through the leather and cardboard pockets.
7. Lace the three parts together using wide lacing.

WALLET

Materials required—3 pieces of leather (1) 3¼″ x 7⅝″, (2) 5″ x 7½″, (3) 2⅞″ x 7⅜″, punch, lacing, skiving knife, isinglass, electric pencil, stamping tools, awl.

1. Cut cardboard pattern for each part as indicated in diagram.
2. Use patterns as templates on leather; cut leather; skive sides and bottom edges.
3. Transfer previously made decorative pattern to the finished side of the back section. Apply decoration. Monograms are suitable for this work.
4. Mark centre lines on the unfinished sides of all sections.
5. Place the centre line of the frame section directly above the centre line of the inner lining, the finished side of both pieces facing up. Use paper clips to prevent the two sections from slipping while lacing holes are being punched on both sides of the centre line. The in-and-out stitch is used to lace these sections together.
6. Mark the position of lacing holes ⅛″ from the bottom edge of the frame section placing the first hole on the centre line, and along the same line ⅛″ from each corner. Use dividers to step off ¼″ spaces between the centre and the corner lacing holes: punch holes.
7. Place the centre line of the laced frame section and inner lining, finished side up, directly over the centre line of the back section, unfinished side up. Fold all sections, square up the sides and lower edges, and use paper clips to prevent the folded sections from slipping out of position. Flatten out the sections and use the holes made in the laced sections to mark the location of the lacing holes on the back section.
8. When marking is completed, remove paper clips and punch holes in the back section.
9. Lace all sections together. Cut and insert isinglass. Cover laced edges with a piece of wood and pound the wood with a mallet to flatten the edges.

BREAST POCKET WALLET

Materials required—leather in sizes as shown in diagram, lacing, zipper, isinglass

1. Cut cardboard templates to size as indicated in diagram.
2. Use templates to cut leather to size.
3. Punch holes in back section; use these holes to mark location of holes in both side sections.
4. Cut slot for zipper. In sewing the zipper to the left side section, the stitching along that side which is closest to the centre line, fastens a lining of thin leather to the side section to form a closed pocket when the side section is laced to the back section; the stitching of the zipper farthest away from the centre line secures one side of the identification frame, the opposite side of which is laced to the back section. Lace stamp pocket to the right side section. Assemble as illustrated.

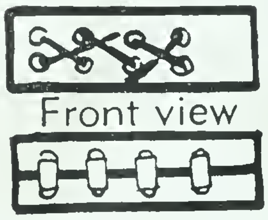
ORNAMENTAL "HEART ON SLEEVE"

Materials required—two pieces of scrap leather, scissors, rubber cement, liquid solder, cardboard, pin, snapshot.

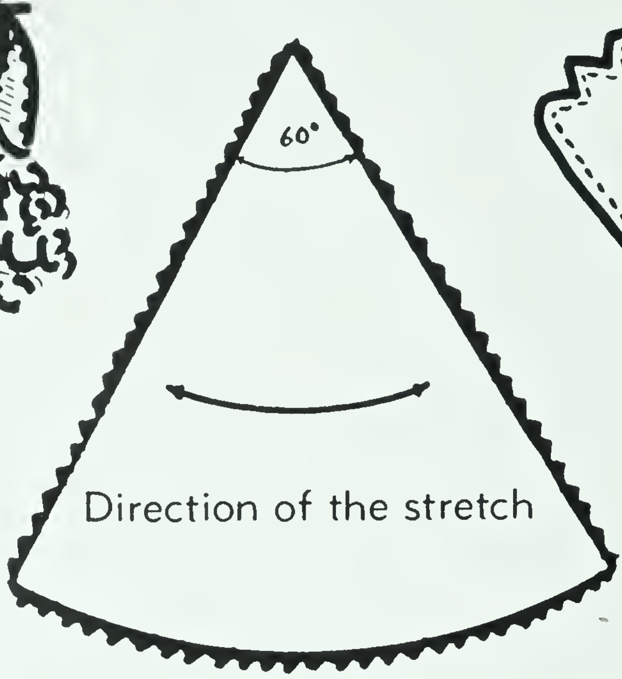
1. Cut out cardboard pattern of two heart shapes, the interior of the smaller one being removed to make a heart-shaped frame.
2. Use cardboard as templates to cut leather to shape.
3. Cement back section, snapshot, and frame section together. The edges of both sections may be decorated by means of the electric pencil.

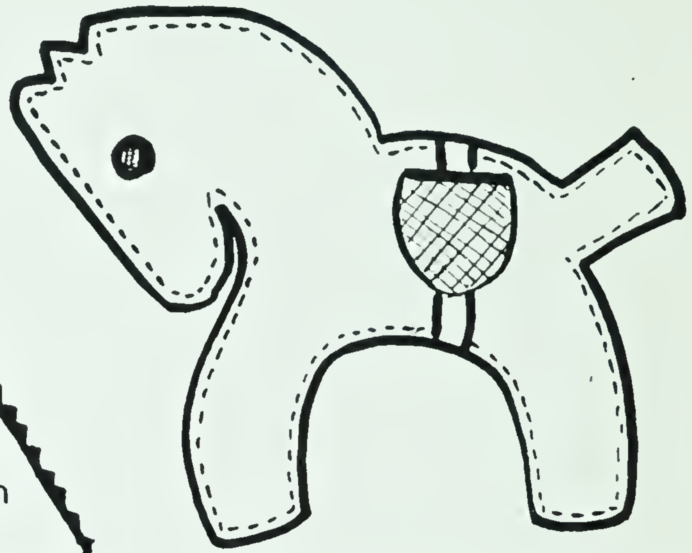
BEANNIE

Butt stitch



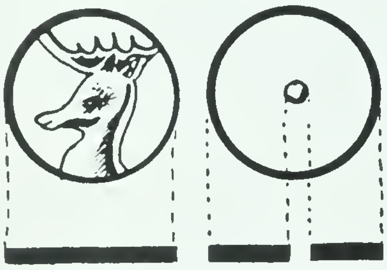
Back view





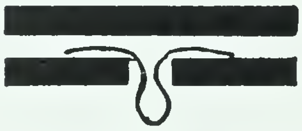
Stuffed lapel ornaments

Leather buttons



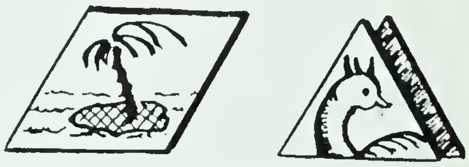
Burnt decoration

Punched under piece

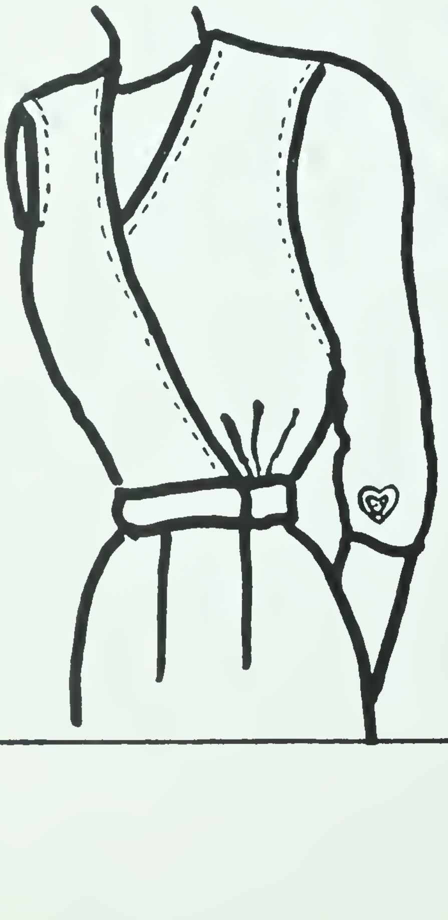


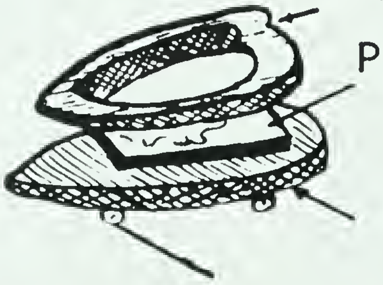
Method used in assembling button parts

Completed button

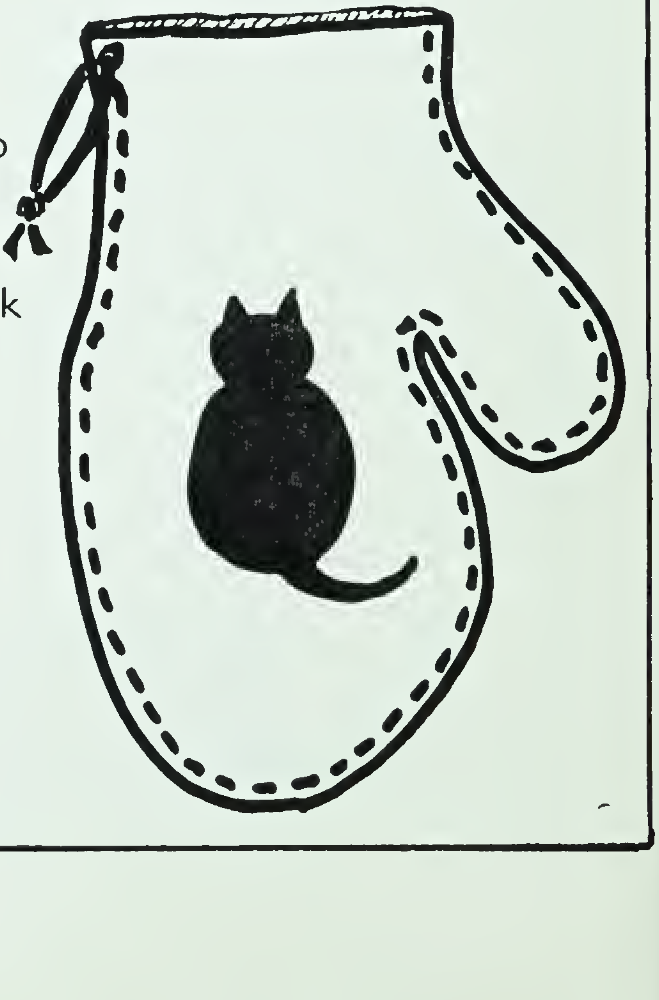


Novelty buttons





Fireside mitt



4. Use liquid solder to attach pin to back of leather.

Beanie

Materials required—Six pieces of soft suede, lacing, scissors, suede scraps, rubber cement, silk embroidery thread, needle, cardboard.

1. Cut cardboard pattern as shown in the diagram. Use this as the template for the six pieces of leather.
2. Make wide lacing of a contrasting or matching colour. Punch holes and use the butt stitch to lace parts together. Use long laces on opposite ends to add to the decorative scheme by tying the ends into a bow on the top. Instead of lacing, the pieces may be stitched together, seams showing, using the saddle stitch.
3. Some students like to cement silhouette forms of leather on contrasting colour, or build up a pattern by appliqués on the surfaces of the sections.

Buttons

Materials required—leather scraps, knife, punch, rubber cement, lacing, electric pencil.

1. Determine the shape of the button desired. Cut cardboard pattern.
2. Plan a decorative unit that will be in keeping with the shape of the button, and with the article upon which the button will be used.
3. Cut out leather. Two pieces will be required for every button.
4. Decorate the face side on one piece, and punch a hole in the centre of the other piece.
5. Cut a small piece of lacing. Put it through the hole of the punched piece and cement down. Cover the flesh side of the top piece with cement and press both sides together as shown in the diagram.
6. Experiment with shapes to get novelty effects.

Stuffed Lapel Ornaments

Materials required—leather scraps, rubber cement, silk thread, needle, cotton batting.

1. Get a pattern that has an interesting outline.
2. Enlarge or reduce the pattern to a suitable size.
3. Make a cardboard pattern allowing for the stitching.
4. All appliquéd work should be done before the two parts are stitched together.
5. The saddle stitch is recommended, as it is easy and effective.
6. Make sure that you leave a sufficiently wide opening before stuffing the ornament. A pencil can be used to advantage for pushing the batting into small corners. When filled, complete sewing.

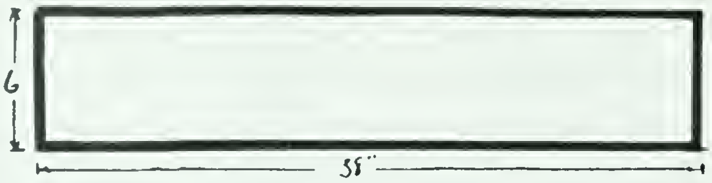
Fireside Mitt

Materials required—Two pieces of leather, preferably one dark and the other light in colour, silk thread, needle, lacing, rubber cement, scissors, paper clips, cardboard, punch.

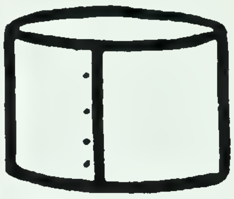
1. Make cardboard pattern similar to that illustrated. Make sure that it is sufficiently large to accommodate even a large hand.
2. Plan an appropriate design to be appliquéd on the brighter leather.
3. Cut out the leather shapes. With the flesh sides touching, clip both sides together and punch holes around the outside edge for lacing, or use silk thread and needle to stitch both pieces together.
4. Cut out pieces to be appliquéd. Mount these parts on the mitt by means of rubber cement.
5. Punch hole and make loop for hanging the mitt.

* * *

The true test of an artist's power is that he should have sufficient stamina to enable his first frenzy to survive the process of "finishing".—*Eric Newton*

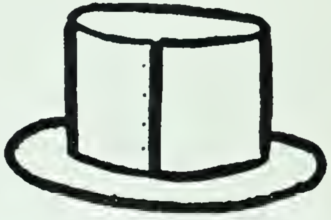


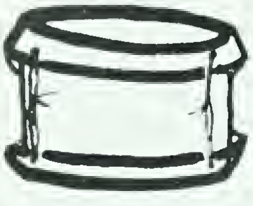
Bookboard



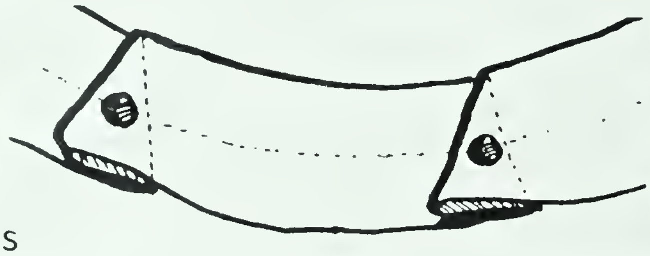
Hollow cylinder with 1″ overlap

Centring the cylinder on the leather circle

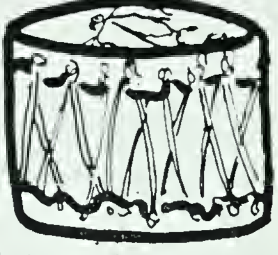




Leather circles tied into place

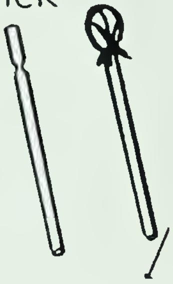


Make darts before punching lacing holes



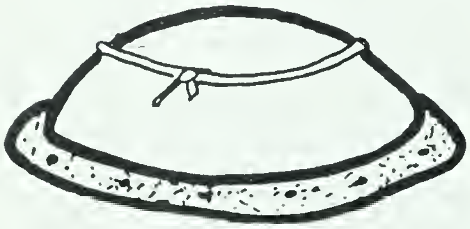
Completed tom-tom showing lacing method and decoration

Notched dowel for drumstick

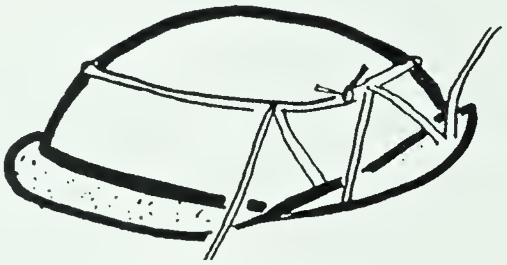


Leather covering for drumstick

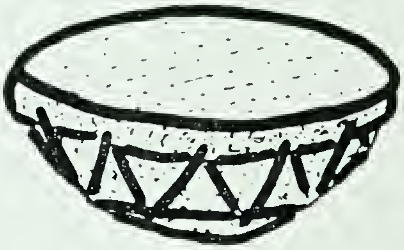
The half drum



Centring bowl on leather

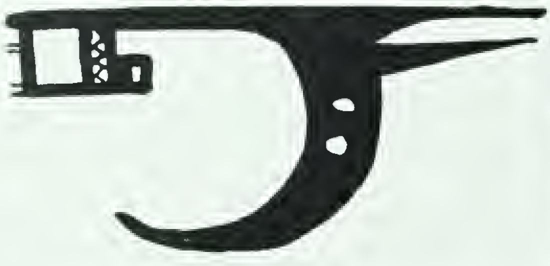


Lacing method

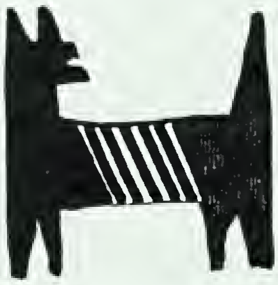


Completed drum

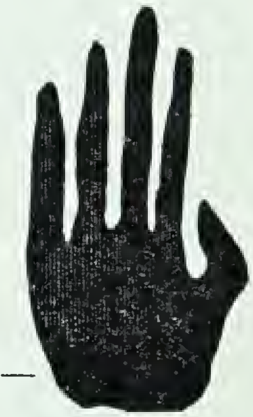
Indian decorative pattern



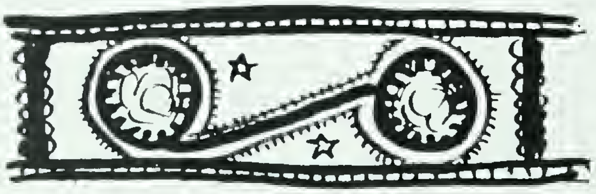
Pueblo pottery bowl



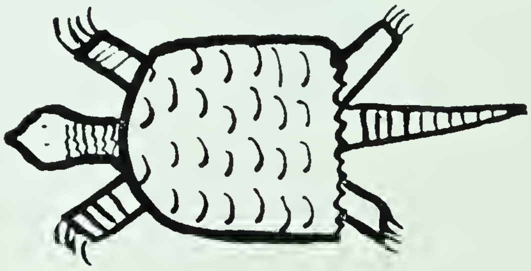
Porcupine quill embroidery—Delaware tribe



Mica ornament—Hopewell mounds



Choctaw beaded belt



INDIAN TOM-TOM

Materials required—Strip of bookboard ⅛" thick, 2 pieces of leather (skiver or lining) each 12" x 12", 1 piece of the same kind of leather 5" x 4" to cover drumstick, ⅜" dowel 12" long, waterproof inks (Higgins), strong lacing, heavy shears, punch, rivets, pair of compasses, electric pencil, cloth scraps, picture wire.

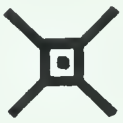
1. Cut bookboard to size. Allow 1" for overlap.
2. Punch holes in the bookboard and rivet the two ends together.
3. Cut a cardboard circle 12" in diameter to serve as a template for the leather covers. Cut leather.
4. Plan decoration. Indian symbols are most appropriate for decorating the outer surfaces of the leather.
5. Place the open bookboard cylinder over the leather circles so that there is an equal margin projecting on all sides. On the inner surface of the leather draw a line ½" from the edge to serve as a guide for punching the lacing holes.
6. Punch four holes in each cover along the lacing line so that the covers may be temporarily tied into position over the open ends of the cylinder.
7. Make darts as illustrated. Punch holes through the three thicknesses of leather. Thread thong or lacing through these holes. On the other piece and slightly to the side of a point directly opposite to the lacing hole just made, make a dart and punch the lacing hole. Draw the thong through this set of holes. Continue this operation all around the tom-tom, drawing the thongs through the lacing holes as the work proceeds. The temporary cords should be removed as soon as the work progresses beyond them.
8. Before finishing off, tighten the thonging so that the leather covers fit snugly over the walls of the cylinder. Fasten the ends of the thong securely. Then, before the decoration is applied, moisten the covers with water to shrink the leather and make it even more taut than it was before.
9. When the leather is dry, apply the decoration. Use textile paints for any painted decoration.
10. To make drumstick, notch the dowel, wrap with scrap cloth, and cover the padded end with the leather that has been cut as illustrated. Bind this drumstick head securely to the dowel with a short piece of picture wire.

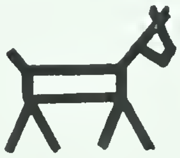
THE HALF DRUM

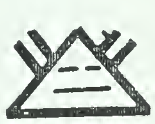
Materials required—11" mixing bowl, 14" circle of leather, thonging.

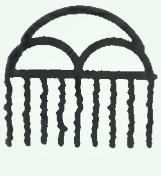
1. Moisten leather circle.
2. Place bowl upside down over circle so that there is a uniform border all around bowl.
3. Tie a length of lacing and place on bowl as shown in diagram.
4. Use another length of thonging to lace leather to bowl by passing the thonging through the hole and around the thonging circle, and through the next hole. Repeat this operation all around the bowl.
5. Make loose knot. Then tighten all thonging until all the slack has been removed, and the leather fits tautly over the mouth of the bowl. Tie both ends securely. Decorate the surface by painting or burning.

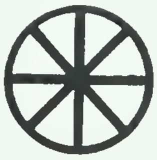
INDIAN SYMBOLS

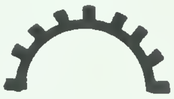

Good Luck

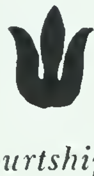

Journey

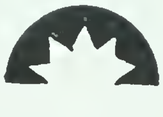

Guidance

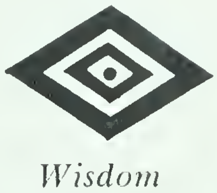

Good Prospects

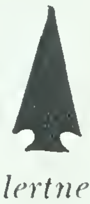

Permanent Home

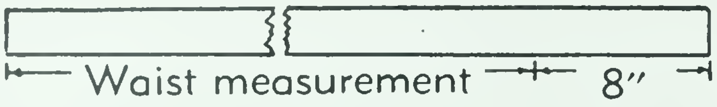

Constancy

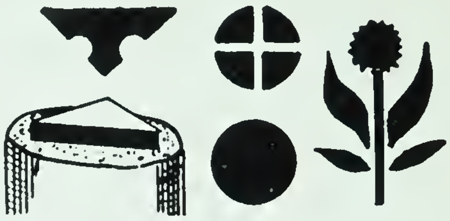

Courtship

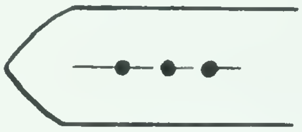

Strength

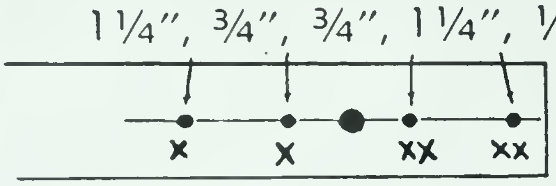

Wisdom


Alertness

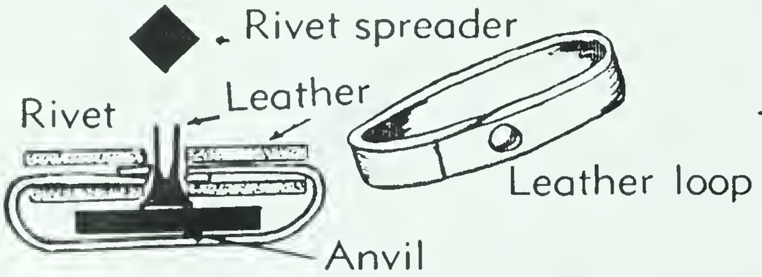


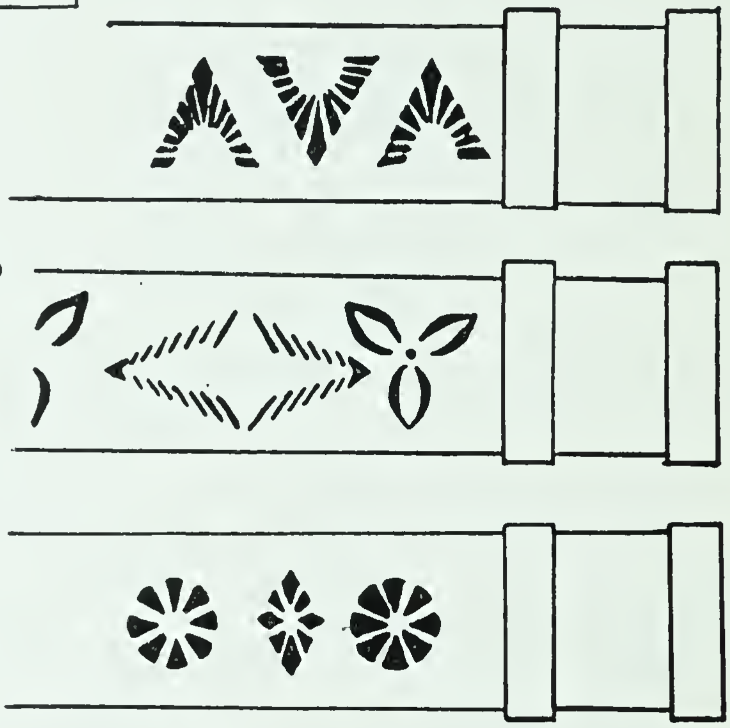

Stamping tools made from dowel

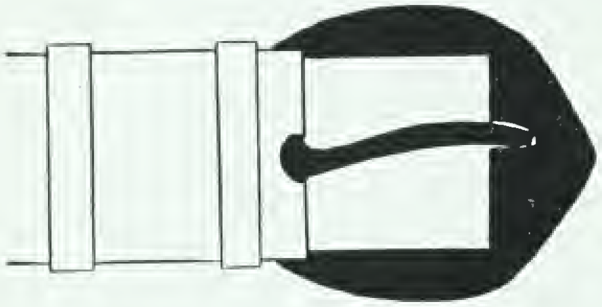

Strap end

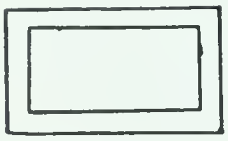


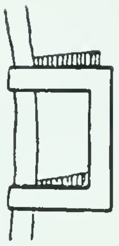
Buckle end

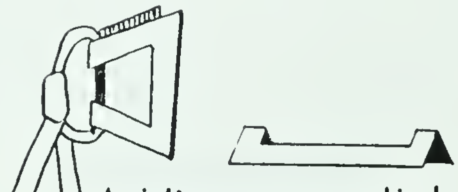


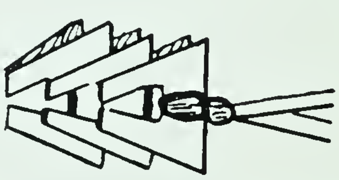

Decorative patterns for strap belts.

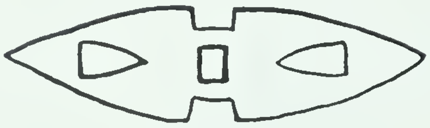

Link belt

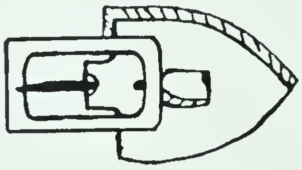

The link

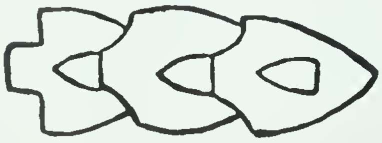

To start linking

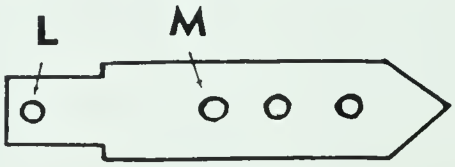

Adding a new link


Last link and fastening thong

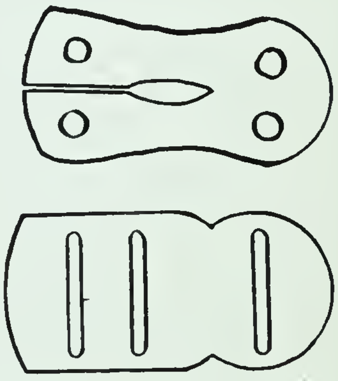

Buckle link. Other links are made the same way but without the slot.


Attaching buckle link to buckle.





Strap end


Some other link patterns

Boy's Strap Belt

Materials required—a strip of leather 8″ longer than the waist measurement and at *least 1/8″ narrower* than the inside of the buckle, knife, punch, modeller, stamping tools, sponge, buckle, rivets, rivet spreader, rubber cement.

1. Make cardboard pattern for shape and cut from leather.
2. Plan decoration on cardboard; transfer to the finished side of the leather by scribbling with a soft pencil over the back of the cardboard pattern, and then outlining the pattern on the finished side of the leather with a sharp pencil.
3. Use modeller or stamping tools to decorate the surface of the belt, working from tongue end towards the buckle.
4. Cut leather for loops—5/16″ x 4½″ for belts up to 1½″ wide. Skive, overlap, and cement ends. When dry, punch holes through the overlapping sections.
5. To attach buckle, measure 2½″ back from buckle end and cut or punch a slot for the tongue of the buckle.
6. Punch holes to accommodate the rivets which will hold the loops in place and fasten the buckle end to the belt proper.
7. Slide loops along belt until the holes in the loops are directly over the holes made for the rivets, X and Y. Insert the rivets through the matched holes so that the head of the rivet is hidden under the loop. See diagram.
8. Put the tongue of the buckle through the slot and fold back the buckle end so that the holes XX and YY will fit over the projecting ends of the rivets. Spread rivets as shown in diagram.
9. Mark location for holes on the tongue end of the belt. Punch: shape tongue end.

Link Belts

Materials required—leather scraps (a good source for this material is discarded leather purses), heavy scissors, cardboard, eyelets, eyelet spreader, buckle, punch.

Two types of link belts are described below.

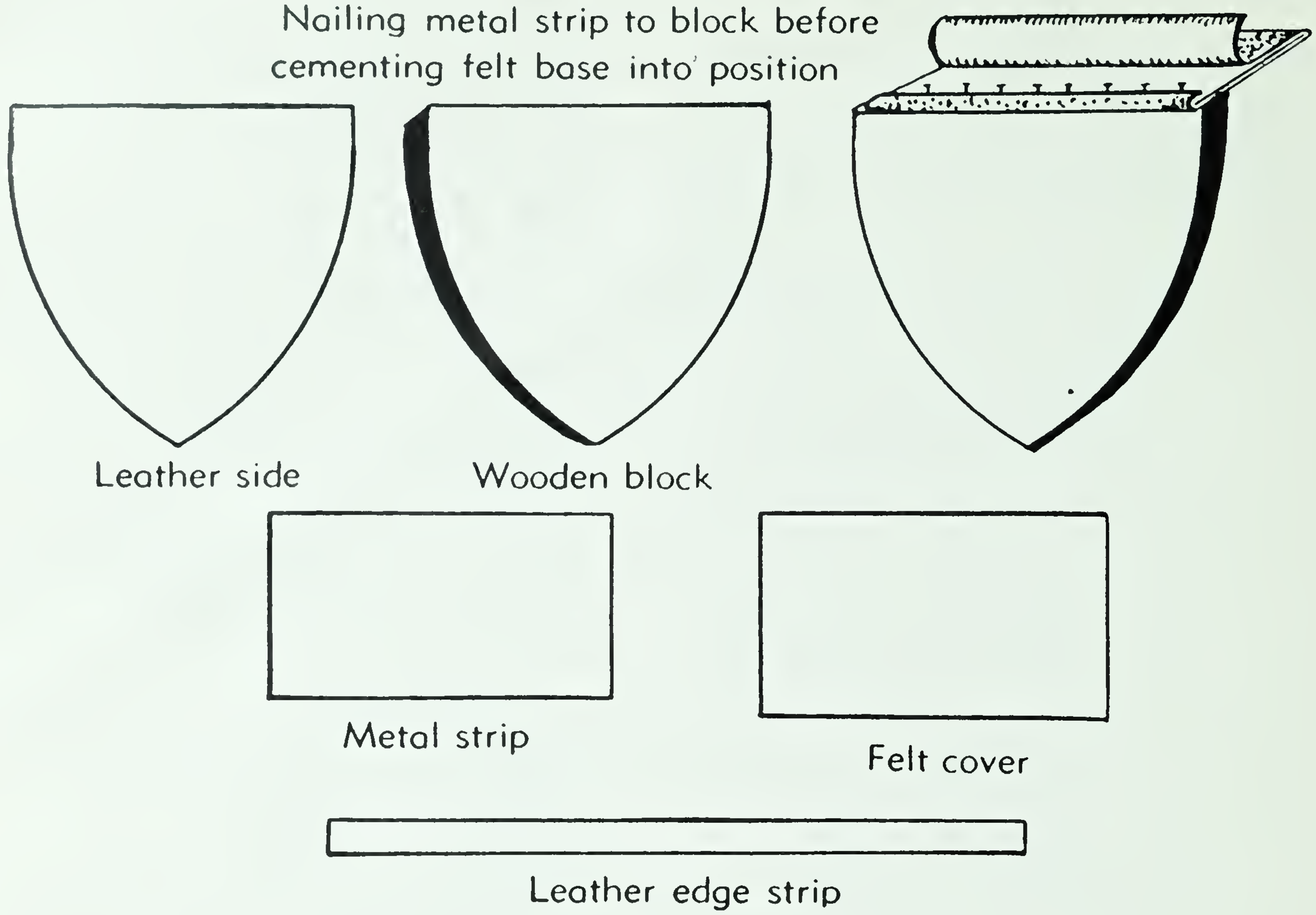
A—requiring no buckle:

1. Make a cardboard pattern of the link shape and transfer the pattern to the flesh side of the leather. The number of links required will vary with the length of the waist line. Twenty-five is a safe number with which to begin. Cut the links. If the leather is thin and soft, use scissors; if the edge cut by the scissors is furry, use a knife.
2. Cut two lengths of leather 14″ long and as wide as the narrowest part of the inner space of the link to serve as thongs for fastening the two ends of the belt.
3. Note diagrams for (a) starting linking, (b) attaching additional thongs, and (c) attaching the final fastening thong.

B—requiring a buckle:

For link belts requiring a buckle, in addition to the links, one special buckle link, and one strap end strip will be required.

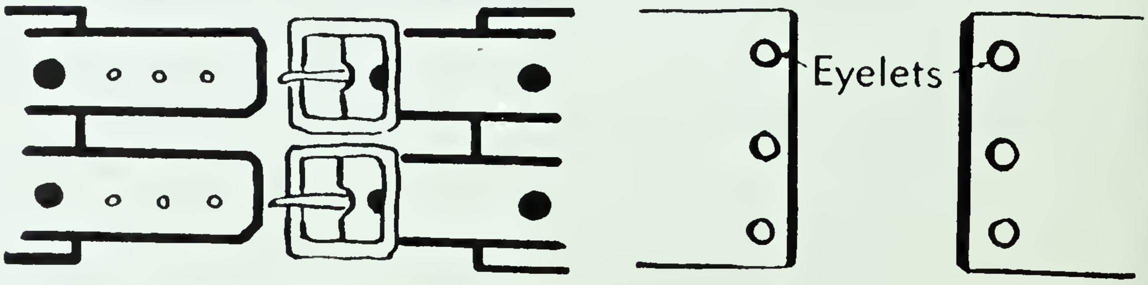
1. Repeat step 1 above, using pattern 2 for the link shape.
2. Cut the buckle link as indicated in diagram. Put the tongue of the buckle through the slot of the buckle link. Fold the halves of the link back.
3. Fold the first link along its long axis and insert it through the two holes made by the folded buckle link. Continue to add links until the links and the buckle meet when stretched around the waist.
4. Cut strap end as indicated in diagram. Put L through the holes made by the last link and fold it back. Line up L with M. Put an eyelet through L and M to fasten the strap end to the rest of the link belt. Put other eyelets in strap end as indicated in diagram.


Nailing metal strip to block before cementing felt base into position
Leather side
Wooden block
Metal strip
Felt cover
Leather edge strip

GIRLS' SPORTS BELTS

Individual unit for block belt

Alternate methods of joining belt ends



BOOK ENDS

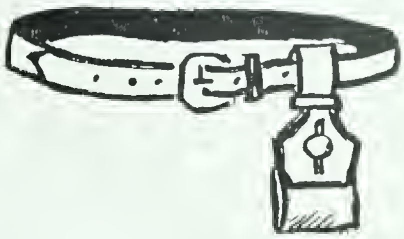
Materials required—two pieces of galvanized sheet iron 4″ wide and as long as the width of the book end, tin snips, drill, wood scraps at least 7/8″ thick, coping saw, leather cement, nails, felt, leather, decoration tools or materials.

1. Make cardboard templates for block shapes, block edge, and metal strip.
2. Use coping saw to cut wood to shape. Cut metal strips to size. Drill a series of holes 1/2″ from the edge on the long side of the metal strip. Cut leather for sides and edges.
3. Decorate the face surfaces of the two pieces of leather that are to be placed on the outside of the wooden block.
4. Cement into place the decorated and inside sections, together with the leather for the edge.
5. Cut felt slightly wider and 3/4″ longer than twice the width of the metal strip. Cement felt to the metal strip, allowing about 3/8″ to extend beyond the edge.
6. Square up that edge of the metal close to the extended portion of the felt with the wood block, and nail metal to edge of block. Fold the extended portion of the felt back and cement to the under portion of the metal strip. Bring free end of the felt around the under side of the metal strip and cement into position, overlapping the already cemented extended portion of the felt.

GIRLS' SPORT BELTS

Materials required—Leather strips three inches wide, or less, punch, eyelets, eyelet spreader, buckles, rivets, lacing, electric pencil, knife, cement, Prang textile paints.

1. Belt lengths should be at least 1 1/2″ less than waist measurement.
2. The width of the belt varies, but should not be more than 3″ for even tall girls. A wide belt on a short girl makes her appear even shorter.
3. Note that the strap belts can be either of one piece or joined, and can be fastened by lacing or with buckles.
4. If coloured leathers or suedes are used, the decoration should be appliquéd; if natural split cowhide is used, the decoration might be made by burning, painting or tooling.



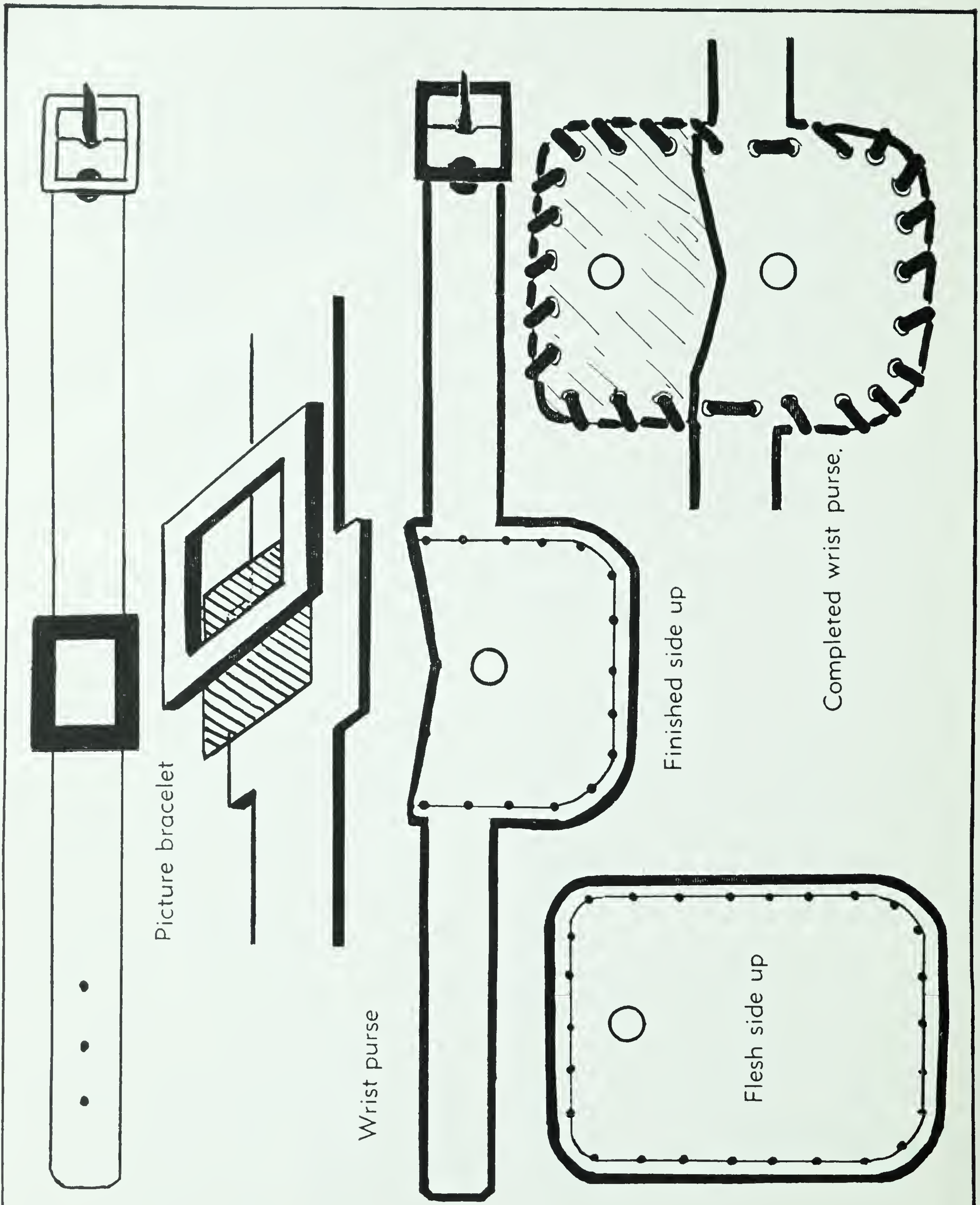
Pouch belt

5. For a block belt, cut blocks 2″ x 1 1/2″ and punch holes 1/8″ from the corners. Use at least twelve blocks for a belt. Decorate by burning in a series of suitable units. Lace as illustrated in Block Belts of Woodcraft.

WRIST PURSE

Materials required—2 pieces of leather, one piece 10″ x 2″, and one piece 4″ x 2″, small buckle, punch, lacing, snap fasteners and set, paper clips, cardboard.

1. Cut cardboard patterns from illustrations. Mark location of lacing holes in each piece. The strap portion must be slightly narrower than the inside of the buckle.
2. Cut leather from patterns. Clip the leather pieces together with the flesh side of both pieces touching, and punch the lacing holes.
3. Punch the holes for the snap fasteners.
4. Lace both pieces of leather together. Note that the over-and-over stitch changes to the in-and-out stitch when the lacing comes to the strap portion and then the over-and-over stitch is again resumed.
5. Punch hole for the tongue of the buckle at least 3/4″ from the end in order to leave a sufficient length of the buckle end for riveting.
6. Mark location of holes for the tongue of the buckle on the strap end before punching them.
7. Attach buckle.


Picture bracelet
Wrist purse
Finished side up
Flesh side up
Completed wrist purse.

PICTURE BRACELET

To make a picture bracelet, cut leather as indicated in the diagram at least 2″ longer than the wrist measurement. Cut photograph and leather frame. Use liquid solder to cement parts together. Attach buckle and punch holes in the strap end of the band.

QUESTIONS

1. Explain how snap fasteners are attached to leather.
2. List the various methods used in decorating leather.
3. How many different kinds of stitches illustrated in this section can be used to lace two or more pieces of leather together?
4. How many of the projects outlined in this section may be made from the leather in discarded purses?
5. Which projects do you consider to be most interesting to girls? To boys? To boys and girls?

ENRICHMENT ACTIVITIES

1. Make a list of the products that are made from leather.
2. Find out what difference exists between suede and chamois; hide and skin.
3. Consult your library for information to learn how an animal skin is turned into leather.
4. Consult the latest copy of the *Canada Year Book* to find out the value of the leather industry to Canada.
5. Find out how much of the North American Indian's costume was composed of leather. The *Picture Book of Canadian History*, Vol. I — Jeffreys, is an excellent source.
6. Visit a tannery if possible.
7. Read Chapter II, Leatherwork in *Pioneer Arts and Crafts* by Guillet to get a better insight into pioneer methods of tanning.

WOODCRAFT

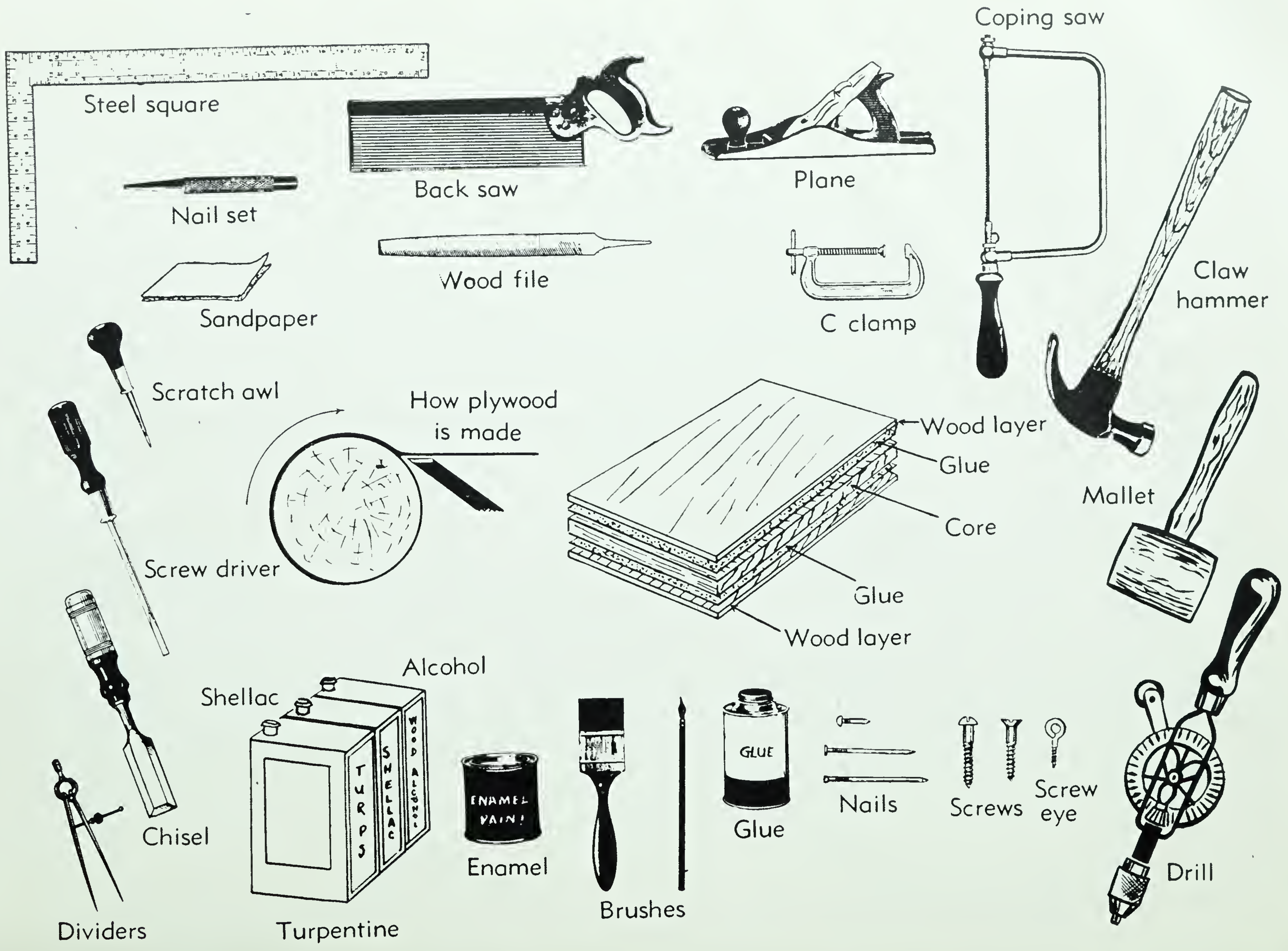
INTRODUCTION

It is not difficult to explain why wood has been an artistic material since the "days when earth was young". Wood has been, and still is, relatively plentiful and easily procured in many parts of the world. Its strength and lightness, in addition to other qualities which permitted it to be sawn, carved, planed, bent, and twisted, were a constant challenge to the artist-craftsman. The natural texture and grain gave the finished product a decorative quality that was a joy to behold. Remember this fact the next time you are undecided whether to paint your wooden article, or stain it to reveal the natural decorative pattern of the wood.

Much of your woodcraft will involve the use of plywood—a man-made material. Even though it has been used extensively in the last twenty-five years, in its original form, veneer, it was known and valued by the ancient Egyptians. Since few trees that could be used as ornamental woods grew in Egypt, the importation of even one log from faraway India was a long and expensive process: a single log had to be used for a great many articles of furniture. The King's mummy cases were therefore covered with a layer of veneered wood. The Romans of the First Century, and the great English cabinet makers of the Eighteenth Century, Sheraton and Chippendale, too, made extensive use of veneer. Costly furniture is still made in the same way—the veneer's purpose being purely decorative. What the former veneer workers did not know, was that veneered wood could be strong, as well as ornamental.

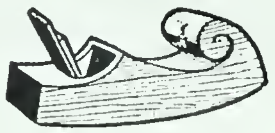
Here is a simple explanation of how plywood is made. A log is rotated against a sharp knife which peels off a sheet of veneer, in much the same way as a roll of ribbon would be unwound, as wide as the log and about 1/8″ thick. As the log unwinds, the layer of veneer is cut into the desired lengths, which are then allowed to dry. Next the sheets are glued at right angles to one another in layers of three or five. Finally, they are put under pressure to expel any air pockets. This process welds the individual sheets into a solid panel.

To test the advantages gained from the construction of a plywood panel take three strips of veneer with the grain running parellel and place one piece above the other. Bend these pieces until they break. Note how much more effort it takes to break three similar pieces when the grain of each is put at right

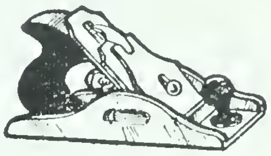

Steel square
Back saw
Plane
Coping saw
Claw hammer
Nail set
Wood file
C clamp
Sandpaper
Scratch awl
How plywood is made
Wood layer
Glue
Core
Glue
Wood layer
Mallet
Screw driver
Alcohol
Shellac
WOOD ALCOHOL
SHELLAC
TURPS
ENAMEL VAIN!
GLUE
Chisel
Dividers
Turpentine
Enamel
Brushes
Glue
Nails
Screws
Screw eye
Drill

angles to that of the other. Besides strength, plywood has other admirable qualities. It is split proof; not subject to the ordinary shrinking and swelling of wood; and, when subjected to steam, plywood can be made pliable. All these factors make it an ideal material for aeroplane construction and boat building. Construction engineers are now exploring its possibilities as the basic building material for pre-fabricated houses.

In the course of this craft you will have an opportunity to become acquainted with tools which have had a long and interesting history. The story of their use throughout the centuries is simply and clearly told in a book by Thomas Hibben, "The Carpenter's Tool Chest."* In our everyday association with woodworking tools, we are prone to take them for granted and forget that they have played a most important rôle in building civilization as we know it to-day. Do you realize that the first hammer was but a crudely shaped stone that was held in the fist? The gradual change from



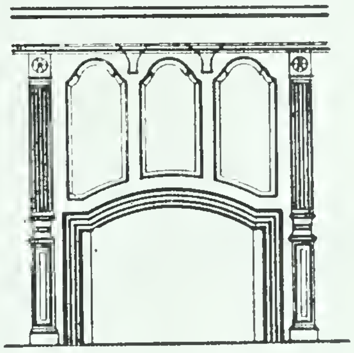
to



together with many similar well-illustrated stories, makes interesting and instructive reading.

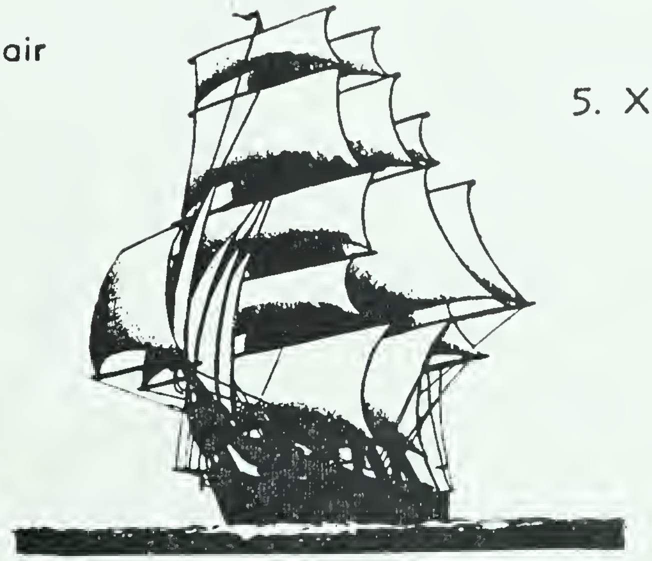
*(Published by Longmans, Green & Co., Canada)

1. Eagle Lectern—XV Century



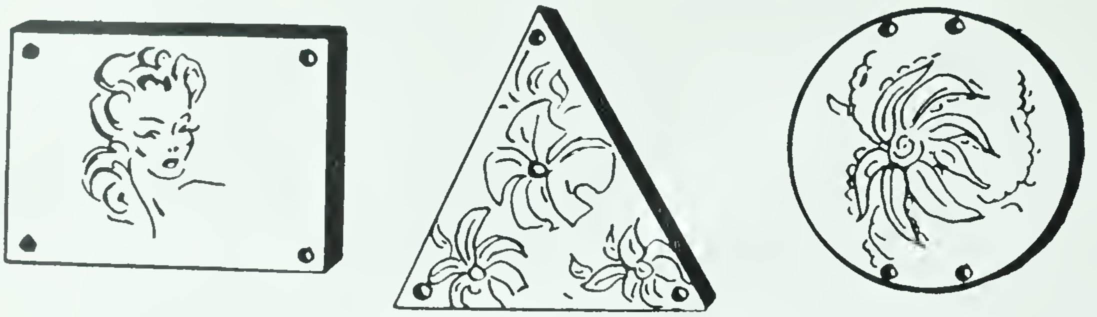
2. Late XVII Century Mantel

3. XVIII Century Sedan Chair

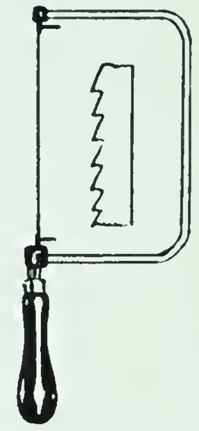


4. XIX Century Sailing Vessel

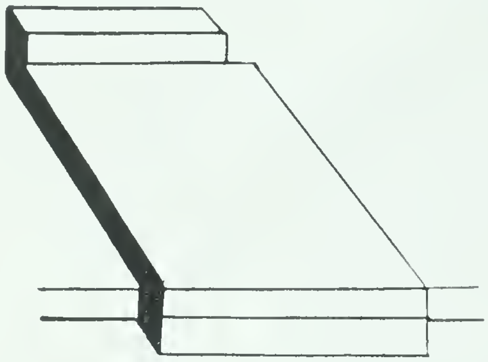
5. XX Century Coffee Table



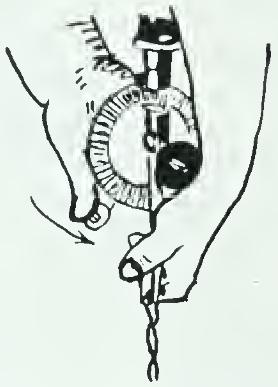
Various shapes can be used for block belts.



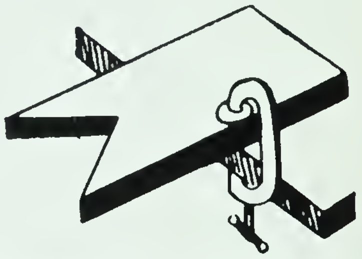
Coping saw—
Note direction of teeth.



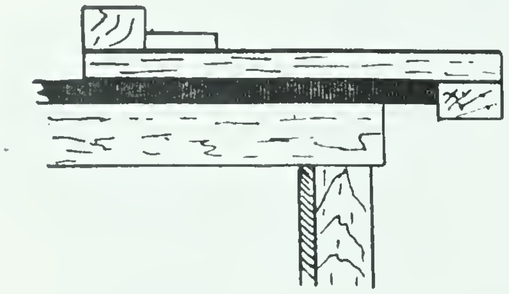
Bench hook

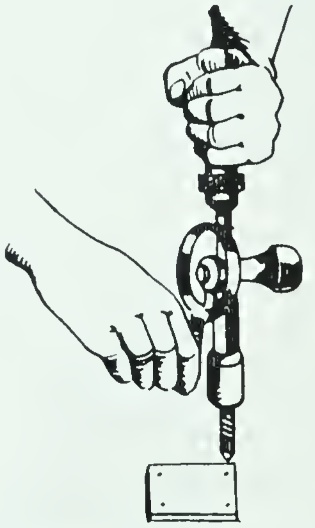


Inserting the drill into the chuck



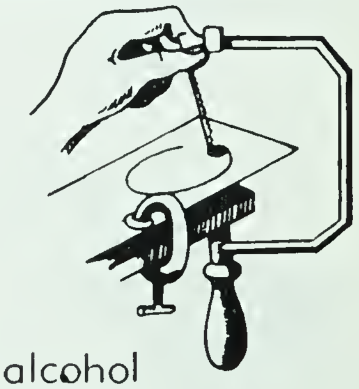
Clamping the sawing jig into position.

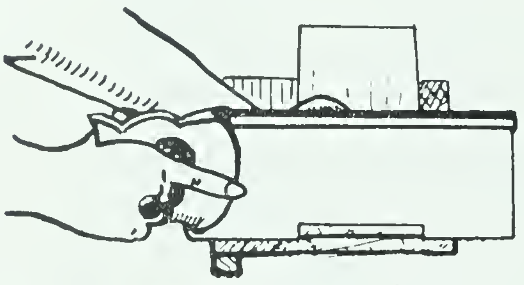




The hand drill in action

To make inside cuts

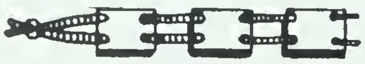




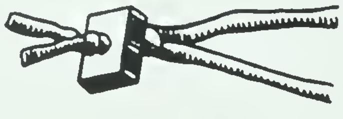
Back saw used with bench hook to cut wood into blocks.

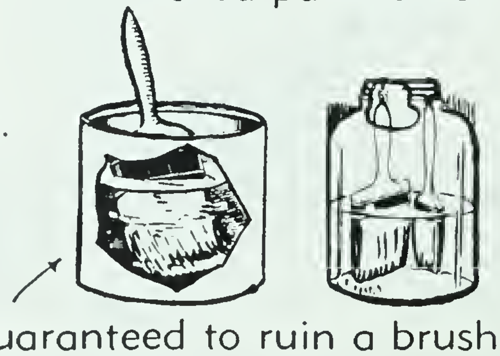
To keep bristles soft— —Use wood alcohol for shellac brushes turpentine for varnished paint brushes.

Sand in direction of grain

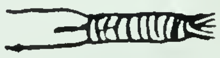


Method of stringing blocks.





Guaranteed to ruin a brush

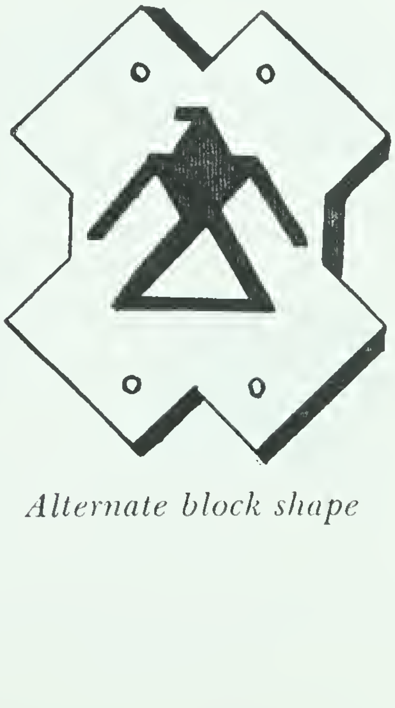


Wire tipped end

Block Belt

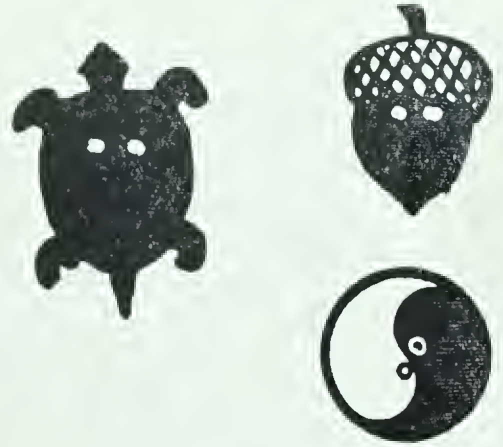
Materials required—coping saw, plywood or orange crate scraps, cord or yarn, carbon paper, house enamels, india ink, sandpaper, wood alcohol, shellac, varnish, hand drill, drill point, brushes, turpentine, picture wire.

1. Collect ten or twelve design units that are associated with one another; e.g., Sea Life—anchor, sailor, tropical island, fish, shells, sail boats, life preserver, starfish, waves, lighthouse, and sea horse. Other topics that may serve as suggestions are: Flags; Goofy Animals; My Family (in cartoon); My Vacation; Favourite Sports; Nursery Rhymes; Movie Stars; Hair Do's; Life at School. Why not choose *your own topic* and *illustrate it in your own way?* The design of the unit should be slightly smaller than the size of the block upon which it is placed.
2. Mark off the dimensions of the block on the wood. Before using the saw, notch the edge of the wood with a sharp knife to prevent the saw from jumping off the line. Cut on the waste side of the line, otherwise the piece will be undersized. Use the first piece as a template for the other blocks.
3. *How to use a coping saw.* There are two parts to the saw, the frame and the blade. The blade fits into the slots of the frame at the points indicated. The teeth of the blade must point down. Sawing is always at right angles to the surface of the wood being cut. A sawing jig, fastened to the table by means of a C clamp will be very helpful in making all kinds of cuts. To remove a section of the interior, first drill a hole in the space to be cut away; then unfasten the end of the blade farthest away from the handle; bend the free end of the blade enough to allow it to be put through the drilled hole; fasten the free end; and continue to saw as before. When the sawing is complete, unfasten the blade and withdraw it.
4. *How to use a hand drill.* As can be seen from the diagram, the hand drill looks very much like your mother's egg beater, and it is operated very much the same way. Notice the two gears, one at right angles to the other. When the gear with the handle is turned, it causes the other gear to turn the chuck, within which the bit is fastened. The bit is held securely by three parts within the chuck. To remove the bit, the chuck is unscrewed. This causes the inner parts to release their grip on the bit; then the bit slips out. To insert a bit, unscrew chuck, place bit within the inner parts, tighten the chuck. It is necessary to press down on the tool to get the bit to enter the wood and finally bore a hole. Drill 1/8″ holes 1/8″ from each corner.
5. Sandpaper the sides and ends of the block in the direction of the grain. Never cut sandpaper with a pair of scissors or knife; always tear it.
6. Using carbon paper, shiny surface down, trace previously made designs from paper to blocks.
7. Thin shellac with wood alcohol; use equal parts of each. Brush mixture on blocks: this will seal the wood pores. The brushes should be cleaned in alcohol.
8. Paint the designs with house enamels. Allow to dry. Clean brush in turpentine.
9. Outline the design units in india ink. This is an optional step.
10. Varnish the blocks. Allow to dry.

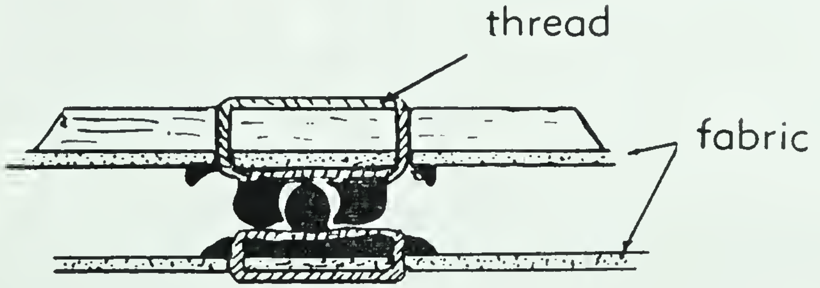


Alternate block shape

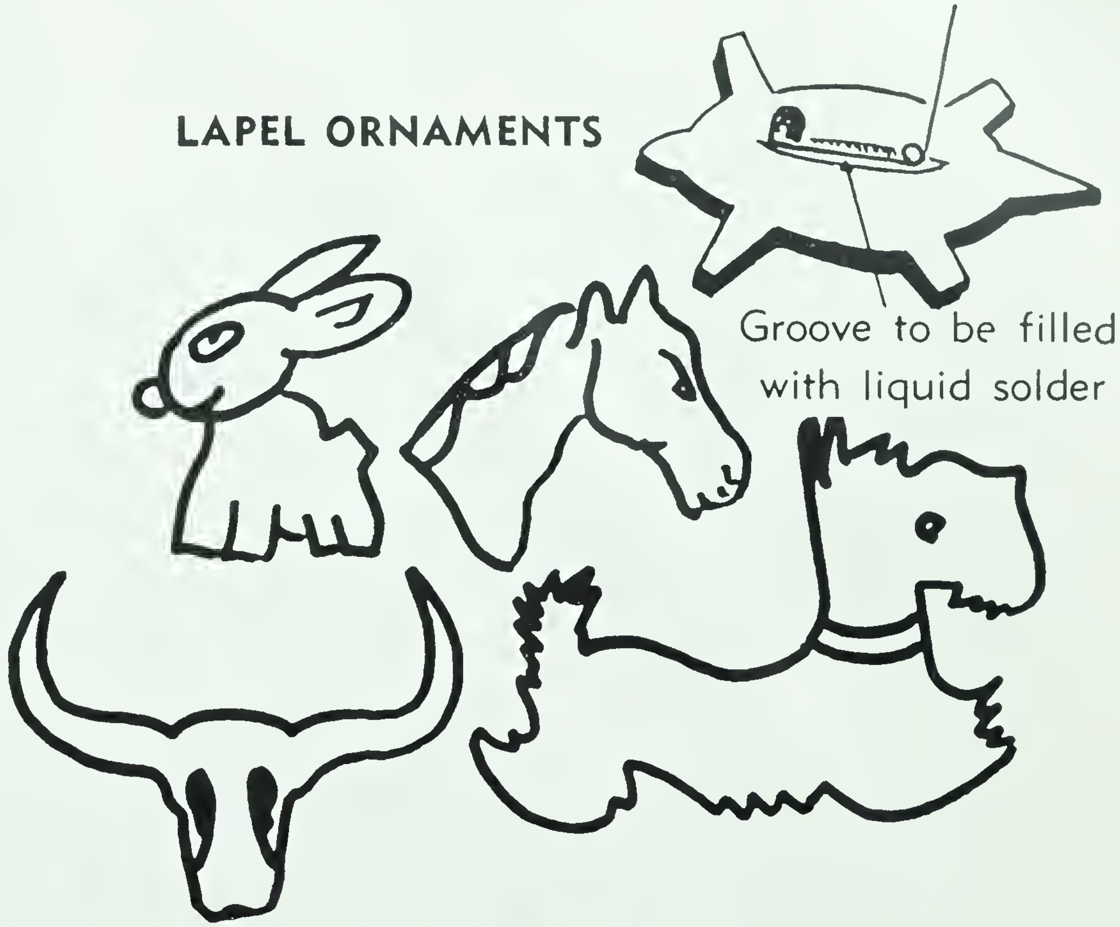
ORNAMENTAL BUTTONS



BUTTON SHAPES



LAPEL ORNAMENTS

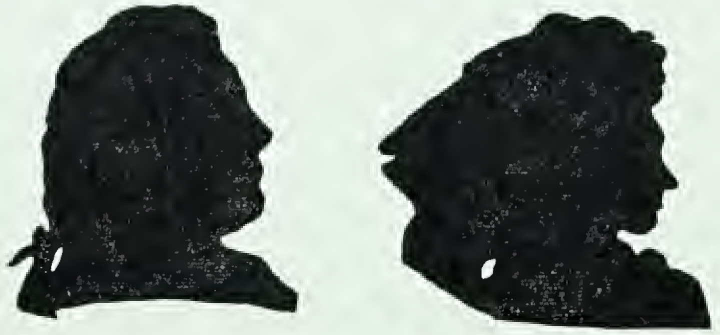

Groove to be filled with liquid solder

SILHOUETTES

Outlining the silhouette

Black mounted on white

White mounted on black



The silhouettes shown above are tracings of the illustrations which appeared in the "Mail and Empire", Toronto, May 24, 1934. They show John Graves Simcoe, first Governor of Upper Canada, and his wife. It is generally held that the silhouettes were made by their daughter.

Sir Walter Scott

11. String blocks. To prevent the ends of the cord or yarn from becoming frayed, wind a thin strand of picture wire around the end of the cord.

LAPEL ORNAMENTS

Materials required—plywood scraps, enamel paints, shellac, varnish, pocket knife, small safety pin, liquid solder, coping saw.

1. Select a design unit that has an interesting outline. If the design is too large, reduce it. Ornaments larger than 3″ x 2½″ are only appropriate under special conditions. See diagrams.
2. Transfer the design to the wood by means of carbon paper or template.
3. Cut out the unit with the coping saw. Sand sides and edges to a satin finish.
4. Draw in any guide lines to be used in painting. Shellac. Allow to dry.
5. Paint the upper surface with enamel paints. Allow to dry. Varnish. Allow to dry.
6. On the unpainted side hollow out a groove longer than the size of the pin and slightly wider. Place opened pin in the groove. Cover the pin and fill the groove with liquid solder. Allow to dry.

An inexpensive stain may be made by squeezing some oil colour into a can which contains sufficient turpentine to dissolve it. Burnt umber is a very satisfactory colour and a little goes a long way. This stain may be brushed or wiped on with a soft cloth.

ORNAMENTAL BUTTONS

Materials required—plywood scraps, coping saw, sandpaper, steel wool, drill, shellac, enamel paints, cardboard, scissors.

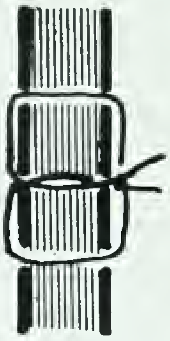
1. Plan shapes for buttons on cardboard rather than draw directly on the wood. This will serve to save the surface of the wood from repeated erasings, and the cardboard will serve as a pattern or template for the button shape.
2. Geometric shapes such as circles, triangles, diamonds, rectangles, or combinations of these, as well as simplified outlines of fish, birds, animals, etc., will give interesting results. Note illustrations.
3. When satisfied with the cardboard design, cut it out and use it as a template to transfer the shape outline to the wood.
4. Cut out buttons with the coping saw.
5. Drill holes for attaching buttons to the dress.
6. Sand and steel wool sides and edges of the cut-out forms to a satin finish.
7. Shellac. Allow to dry.
8. Sew buttons to the dress over snap fastener as shown in diagram.

SILHOUETTE PLAQUES

Materials required—large sheet of paper, strong source of light (sunlight or projection lantern), pencils, rulers, plywood scraps, coping saw, scissors, shellac, sandpaper, stain.

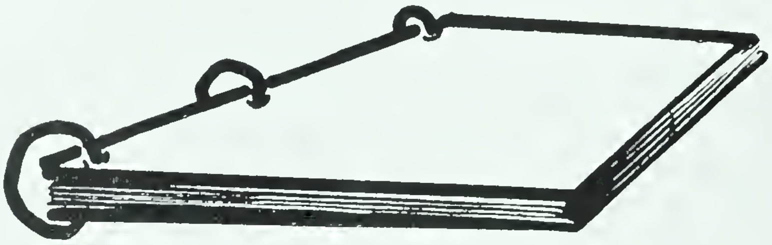
1. Have the student stand as still as he can between a source of strong light and a sheet of paper, so that the shadow cast upon the paper is distinct.
2. Get another student to outline the shadow on the paper with a dark pencil or crayon. When the outline has been made, check with the profile for correction.
3. Surround the outline by a rectangle and divide into squares. Using the square, reduce the outline to a size suitable for the silhouette outline.
4. Trace the reduced outline on to plywood. Cut out outline shape. Sand.
5. Determine whether a light coloured head is to be placed on a dark background, or a dark coloured head on a light coloured background. Stain the background or cut out as the case may be. Shellac the wood to be left light coloured.
6. Attach the silhouette to the background by nailing both together from the back, using small nails so as not to mar the surface of the silhouette and destroy the impression.

Back cover



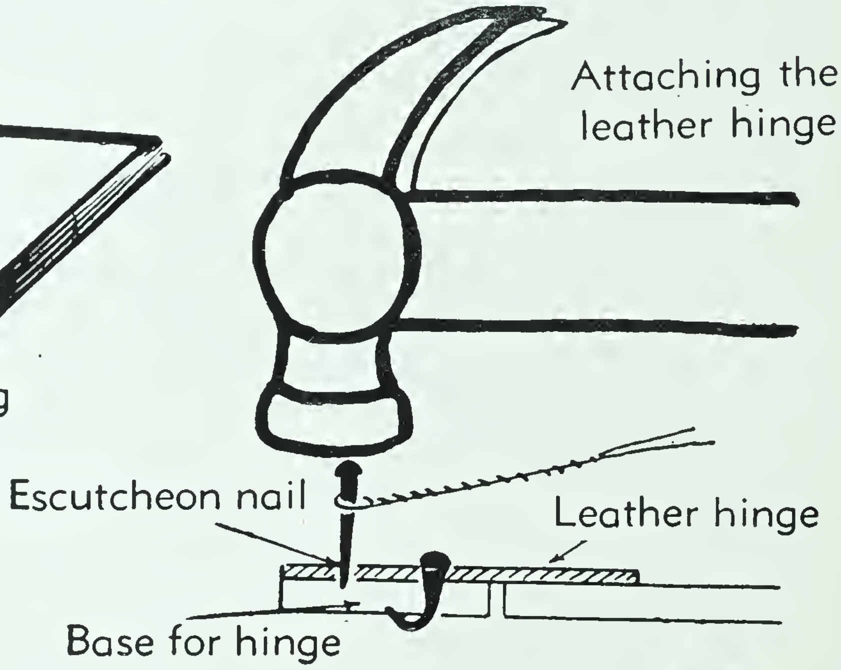
End view—Showing the method of tying the sheets between the covers

Front-cover

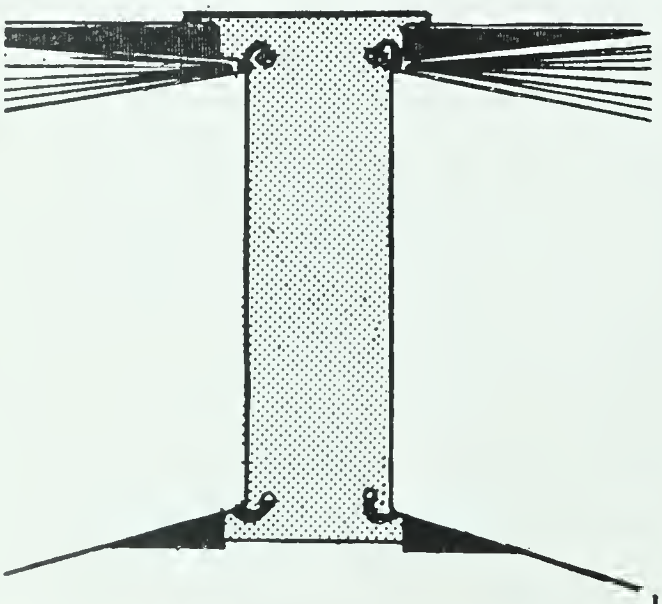


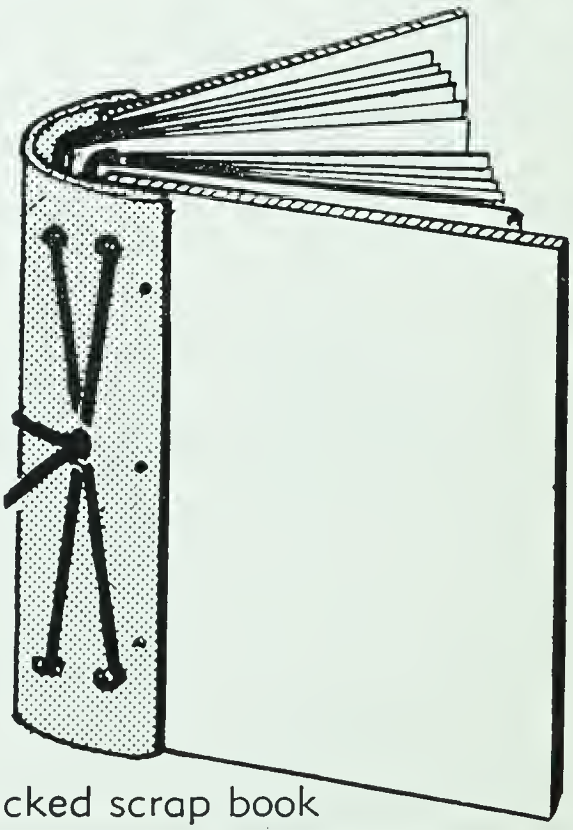
Metal ring binding

Attaching the leather hinge



Inside view to show method of assembly





Leather-backed scrap book

7. For a century before photography became possible, everyone was having his profile done in black with scissors and brush. The English had been using this method of portrait making as a form of entertainment. Young ladies practised this art in the evenings by standing their subjects against a wall and tracing the shadows. In fact, this type of picture was generally referred to as a "shade". The name "Silhouette" comes from an official of Louis XV's government, Etienne de Silhouette, noted for his money pinching methods. Every sort of petty economy was associated with his name, and à la Silhouette became the tag for a picture made with the least amount of effort and with the slightest means.

The speed and accuracy of the method may account for its widespread popularity. But the coming of the photograph pushed silhouette making into the background. Silhouette artists are sometimes to be met on the boardwalks of entertainment parks.

Scrap Book

Materials required—two pieces of plywood 9″ x 12″, scrap leather, thonging, escutcheon nails, saw, hammer, drill, shellac, house enamels, varnish, sandpaper, ticket board (thin cardboard), scissors.

1. Cut plywood to the required sizes. Sand both sides and all edges.
2. Select the better side of the plywood piece. Mark off a section 1″ wide to serve as a base for the leather hinge.
3. By means of carbon, transfer the previously-made decorative pattern to the selected surface of the front cover. Remember that the decoration should be in keeping with the material found between the covers. What decorative units would you consider fitting if the scrap book were to be used for: a Vacation Diary, a Photo Album, Science Clippings, Kitchen Recipes, Sports, Hobbies?
4. Cover the sides and edges of all pieces with shellac that has been thinned with alcohol. Clean brush in alcohol.
5. When you have decided upon the colour scheme, paint the decoration. All hues can be used, providing they are separated by neutral (black, gray, white) bands of colour. Allow to dry. Clean brush in turpentine.
6. Do your varnishing in a dust-free corner of the room. Use the varnish as it comes from the can. Apply it with a wide brush so that it may spread easily. Use long, light strokes in the direction of the grain. Allow to dry. Clean brush in turpentine. Cut 1″ section from front cover.
7. Cut leather for hinges 1″ x 1½″. At equal distances from top and bottom of the front cover, nail the opposite ends of the leather hinge to wooden hinge base and the cover portion. Use an awl or nail to pierce the leather in order to make the nailing easier. The nails may be held in position by means of pliers or a twisted piece of wire. Hammer the nail points on the inner side of the cover into the wood in the direction opposite to that of the grain of the wood.
8. Mark position of the holes for the thonging. Clamp both covers together, making sure that the upper cover is directly above the lower cover at all edges. Drill holes at the marked points.
9. Cut ticket board ½″ shorter and narrower than the size of the covers. Punch holes in the paper to fit the holes made for the thonging in the covers. Assemble.
10. Use large metal rings for B type of scrap book.
11. For C type fold pages and punch holes to match the holes punched in the wide leather hinge. Use thonging to assemble as shown in diagram.

* * *

The carpenter stretcheth out his rule; he marketh it out with a line; he fitteth it with planes; and he worketh it out with the compass . . . — *Isaiah* 44: 13

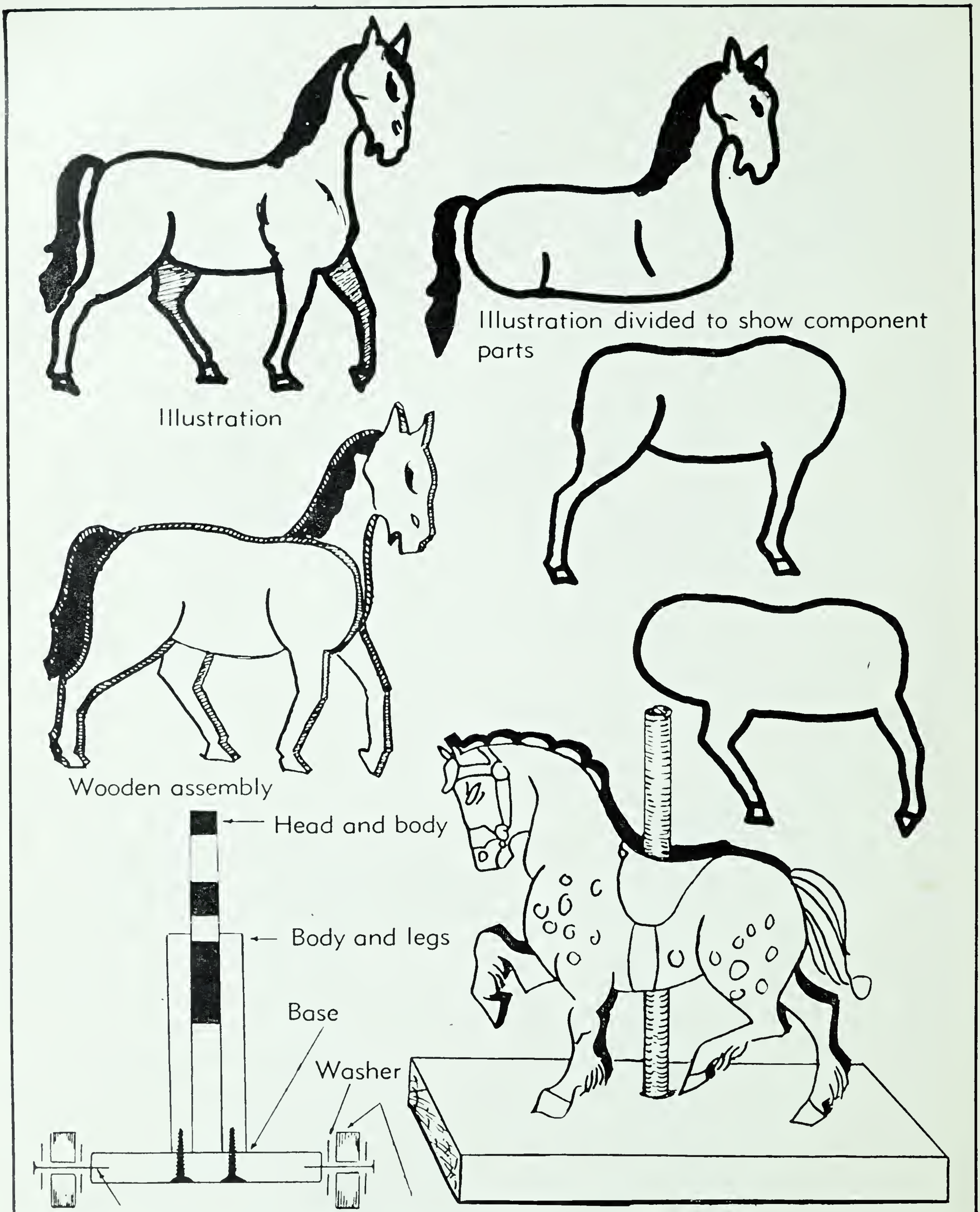


Illustration divided to show component parts
Illustration
Wooden assembly
Head and body
Body and legs
Base
Washer
Roofing nail
Wooden wheels
Donut horse

WHEELED TOYS

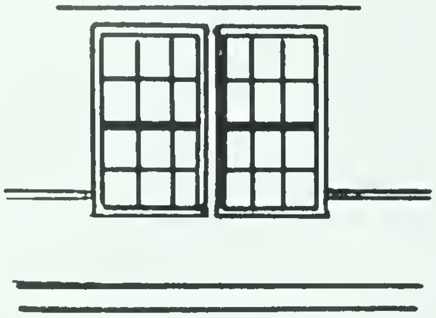
Materials required—wood cuttings, plywood scrap, compasses, cardboard, scissors, roofing nails, screws, sandpaper, shellac, enamel paints, varnish, screwdriver, washers.

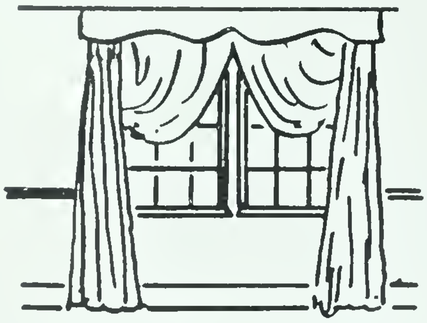
1. Get a picture of a simplified animal shape. If you cannot find one, simplify an animal picture so that only the parts essential to its outline remain. See diagram.
2. Enlarge or reduce diagram to fill a space no larger than 8″ x 11″.
3. Outline the shape of (1) head, neck, body, and tail on one piece of cardboard, and (2) body and legs on another piece of cardboard. See diagram.
4. Trace outline for body and head on wood 1″ thick and cut out. Trace outline for body and legs on wood ½″ or ¾″ thick and cut out *two* pieces.
5. From plywood cut out four wheels, the diameter being about one-fourth the height of the animals. Drill hole at centre slightly wider than shank of the roofing nail.
6. From wood 1″ thick, cut base so that there will be at least a 1″ margin all around the animal.
7. Sand and shellac all parts before assembling.
8. Nail the three body parts together. When driving nails grasp the hammer near the end.
9. Choose a gay colour scheme for the toy. Use colours that are far remote from the actual colour of the animal. If you have never seen a green elephant with yellow polka dots and purple eyes, well, let your finished product show what such an elephant would look like if he were coloured as above.
10. Fasten animal to the base by means of screws. Put soap on the threads to make the screws go into the wood more easily. See diagram.
11. Attach wheels to the base with roofing nails. Insert washers on both sides of each wheel. See diagram.

DONUT HORSE

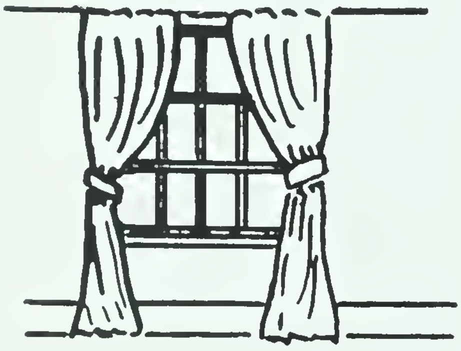
Materials required—wood scraps ⅞″ or 1″ thick, two feet of ⅜″ dowel, brace and bit, coping saw, shellac, enamel paints, varnish, C clamp.

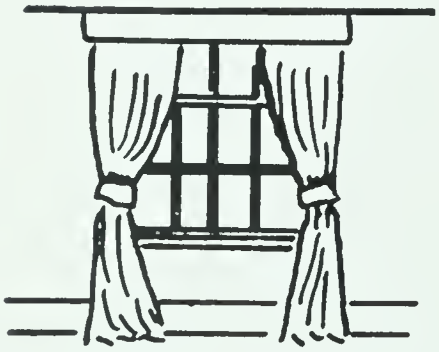
1. Get or make a design for a "merry-go-round" animal.
2. Reduce or enlarge the decorative unit to fill an 8″ x 5″ space.
3. Trace design on wood by means of carbon. Cut out with coping saw.
4. Drill hole through animal for the dowel. Put the dowel through the hole.
5. Make the base. Find the centre by drawing the diagonals. Drill hole ⅜″ deep for the dowel.
6. Sandpaper all parts. Shellac. Allow to dry. Paint. Assemble.



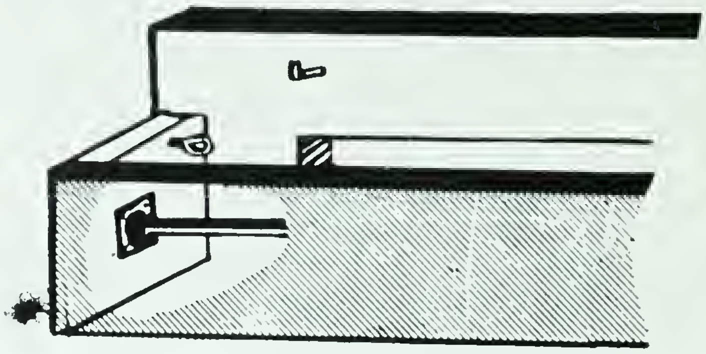


A valance serves to unite two windows into a single unit.



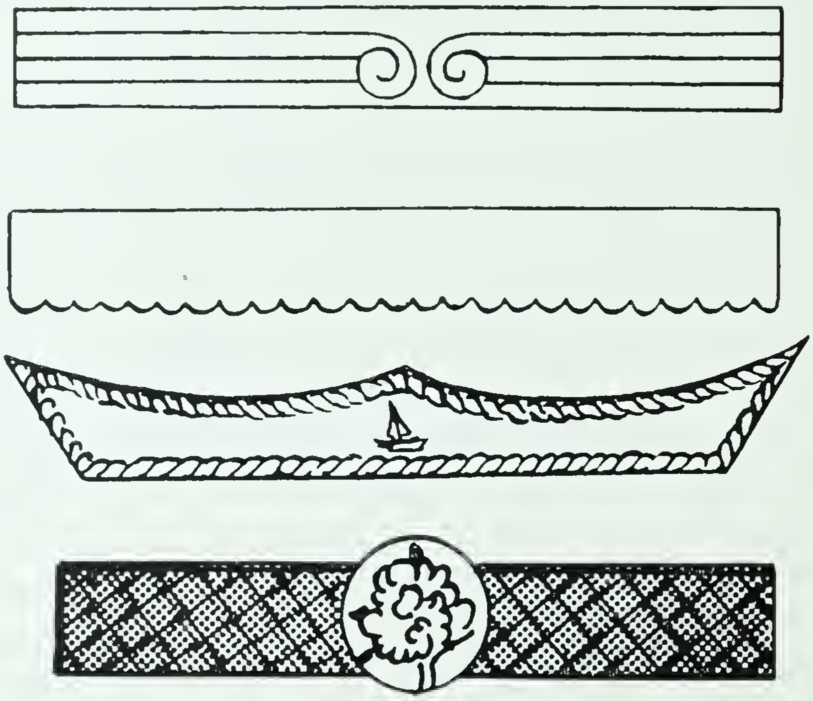


A valance provides a joining line between two drapes.

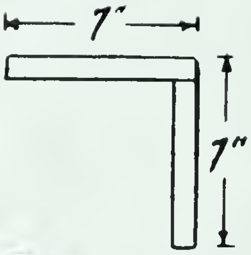


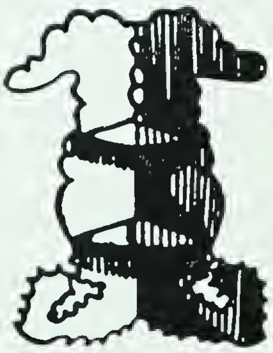
How to attach valance to window frame.

Surface decorations for valances.



What-not





Student's design

Commercial design

VALANCE

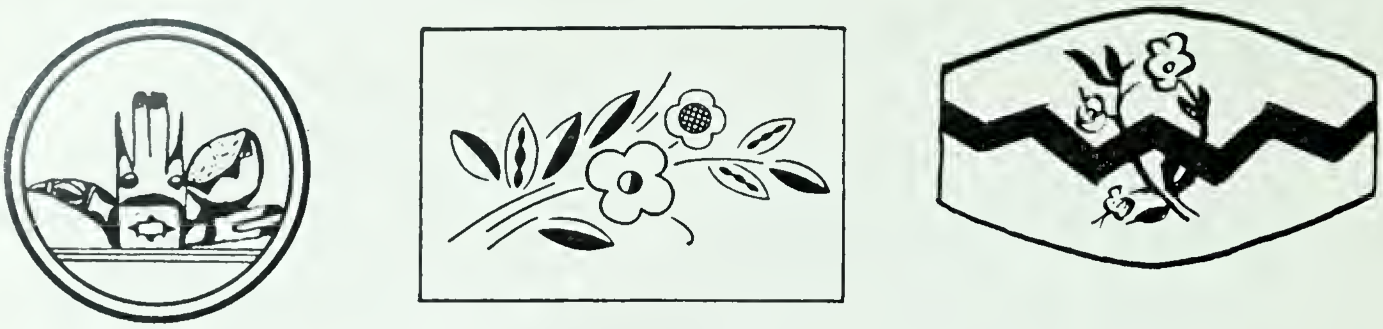
Materials required—plywood, wood scraps 5″ x 5″ x 1″, nails, shellac, enamel paints, metal shelf hangers, saw.

1. In addition to being a decorative window feature, the valance might serve in any of the following ways: (a) to connect a group of two or more windows to form a single unit (see diagram); (b) to form a connecting line between the draperies and the top of the window (see diagram); (c) to hide the fixtures upon which the drapes and curtains are hung.
2. Valances have a tendency to make ceilings appear lower than they really are. It is for this reason that they should be used with discretion in low-ceilinged rooms. However, they can make a window appear higher by being so designed that the eye travels toward the ceiling rather than towards the floor. See diagram with the ship unit.
3. The valance consists of three parts—two side blocks and one face board.
   (a) *The side blocks*—These are usually as wide as the faceboard. They have metal shelf hangers for attachment to the wall; and the length depends upon the distance that the drape and curtain fixtures extend from the wall.
   (b) *The faceboard*—In the faceboard the width is variable. The overall length depends upon the length of the window head; it may be shaped or rectangular; framed by moulding or rope. The faceboard is covered with wallpaper or drape material and decorated with painted or appliquéd units.
4. Get length of window head and add 1″ for length of faceboard.
5. Add ½″ to the distance that the curtains and drapes extend from wall for length of side blocks.
6. Sand and shellac all parts. Apply decorative units. Assemble.

CORNER BRACKET

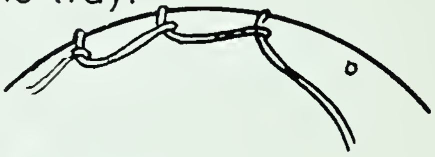
Materials required—coping or jig saw, plywood, shellac, varnish, metal square, hammer, finishing nails.

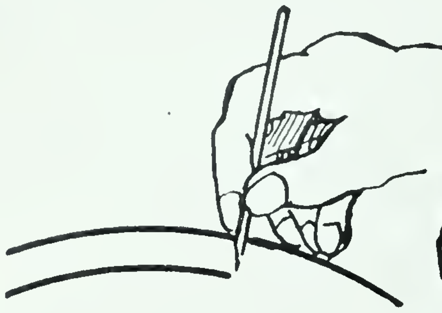
1. These brackets have been made commercially for a long period and range from simple to complicated designs. Do not be too ambitious for your first project. Keep the outline simple and the number of shelves down to two.
2. Plan your shapes on cardboard. *Remember* that *one side* will have to be *narrower* by the width of the wood used in order to make both sides appear to be equally wide. See diagram. Be sure to make provision in the plan for hanging the bracket.
3. Plan position of the shelves. See that they divide the total space covered by the bracket into pleasing areas. A mechanical division does not giving a pleasing effect. The shelves should be so placed that they do not divide the whole length into halves, thirds, or fourths, but may be slightly above or below such divisions.
4. Transfer designs to plywood. Cut out the sides and shelves. Sandpaper. Shellac. Allow to dry.
5. On that surface of the plywood that will be placed against the wall, mark position of the shelves and drill holes to make the assembling easier. Be sure that these holes are made on a line that is at right angles to the vertical, or your shelf will not be horizontal.
6. Fasten the narrower side *to* the wider side, using the try square to be sure of getting a right angle.
7. Nail shelves to sides. Varnish. Allow to dry.



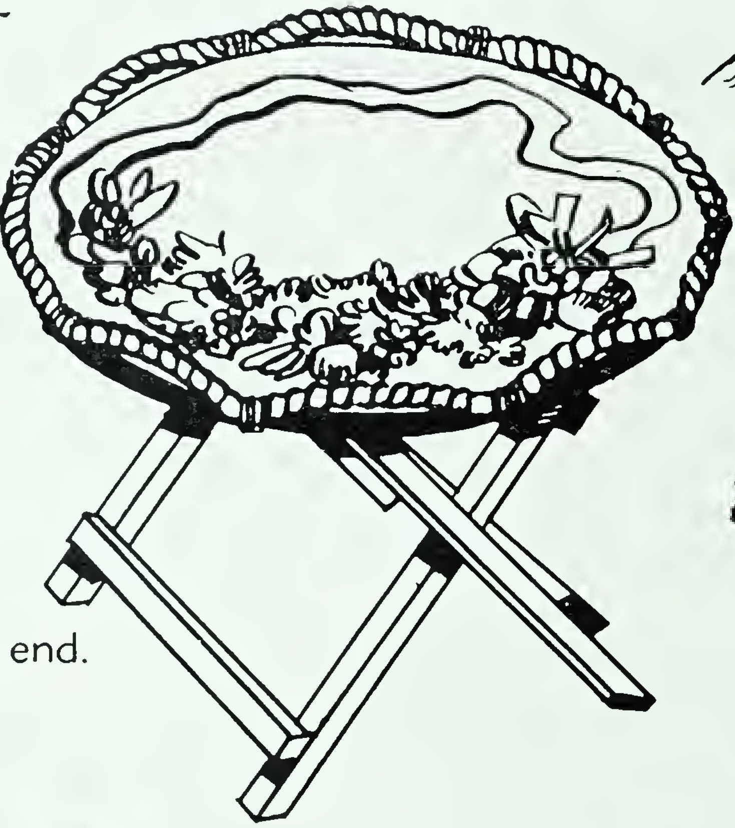
Tray shapes

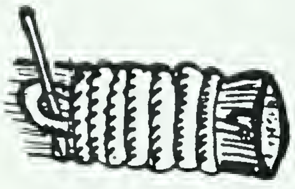
Under side view showing how the rope is fastened to the tray.



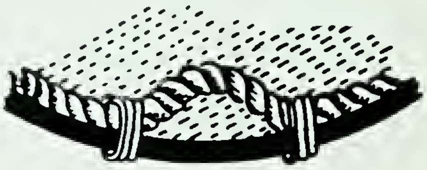


Finger gauge

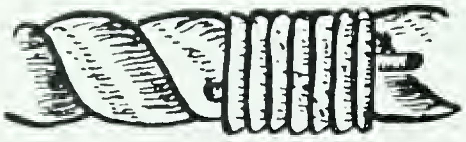




Whipping a free rope end.

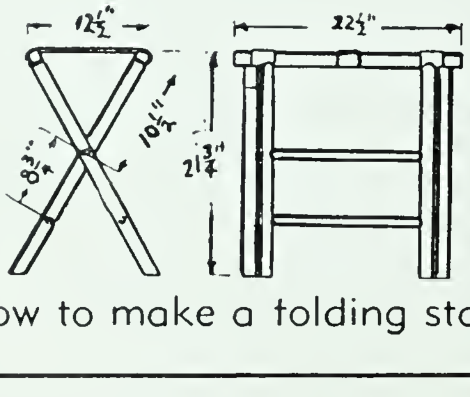


Making the handle



How to bind the free ends together.

Scalloped edge



How to make a folding stand

Tray decoration

Rope Edged Tray

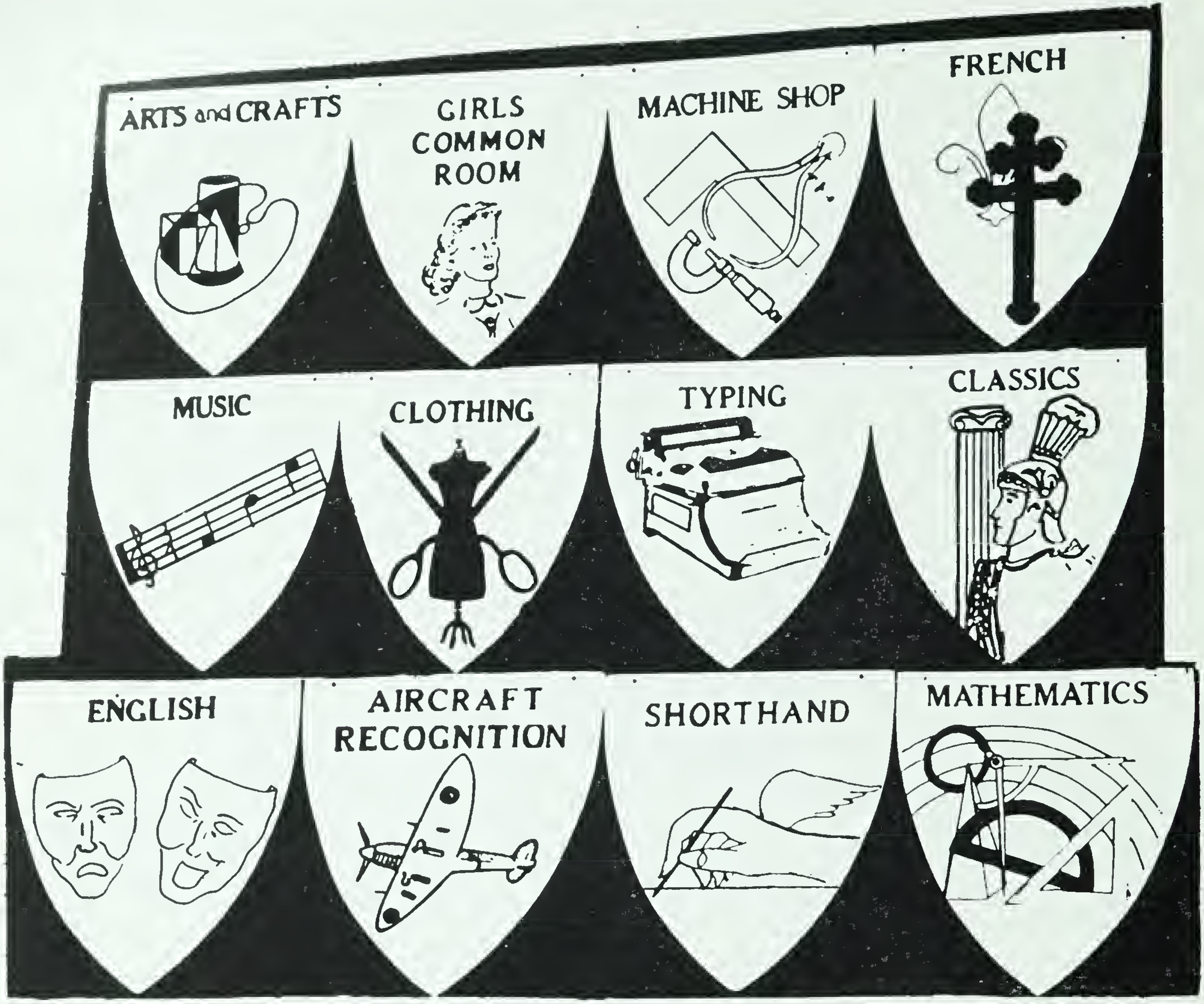
Materials required—plywood, coping saw, sandpaper, shellac, drill, carbon paper, enamel paints, india ink, varnish, brushes, rope, whipcord or rug wool, empty tin can.

1. Determine the tray shape. See diagrams.
2. Cut out tray shape with coping saw from ¼″ or ⅜″ plywood.
3. Sandpaper sides and edges. On the face side draw a line ⅜″ from the edge using the finger gauge for oval or circular shapes.
4. Divide line into a number of equal lengths about 1½″ each.
5. Find balancing point in the tray and locate position for handles.
6. Use ⅛″ drill to make holes at the divisions. Do not drill holes where the handles are to be located.
7. Using the base as a template, outline its shape on paper.
8. For a decorative pattern, investigate the possibilities of the colourful Mexican designs, or the Indian conventionalized units. Enlarge your pattern so that it will adequately fill the space provided on the surface of the tray.
9. Plan at least two different colour schemes before deciding which to use.
10. The decorative unit is transferred to the face of the wood by means of carbon. Use an eraser or sandpaper to remove any unnecessary lines.
11. Shellac both surfaces and edges. Allow to dry. Clean brush.
12. Use house enamels to paint pattern. Allow to dry.
13. Cut a length of ⅝″ rope at least 12″ longer than the circumference of the base. At a point half-way between places where handles are planned, begin to lash the rope to the tray by threading the whipcord or wool through the holes and around the edge of the tray. See diagram. Use thin picture wire to wind end of whipcord to prevent it from becoming frayed.
14. When the hole immediately before the handle is reached, firmly pull the whipcord through this hole at least three times to counteract the strain on the handles when the laden tray is lifted.
15. Place an empty tin can on its side and coil the rope over it. At the next hole lash the rope to the base at least three times. Remove can. This will leave a suitable handle.
16. Continue to lash the rope to the base until location of other handle is reached. Repeat as in 14 and 15.
17. When the starting point is reached, cut rope, whip each end at this point and then butt and bind both ends to the base. See diagram.
18. Varnish complete tray. Allow to dry.
19. Instead of rope, scalloped ⅛″ plywood may be nailed to the edge of the tray. Be careful not to bend this strip too sharply, lest it crack. Use nails about 3″ apart until both ends meet, or should they overlap, cut so that the scallop is continuous.

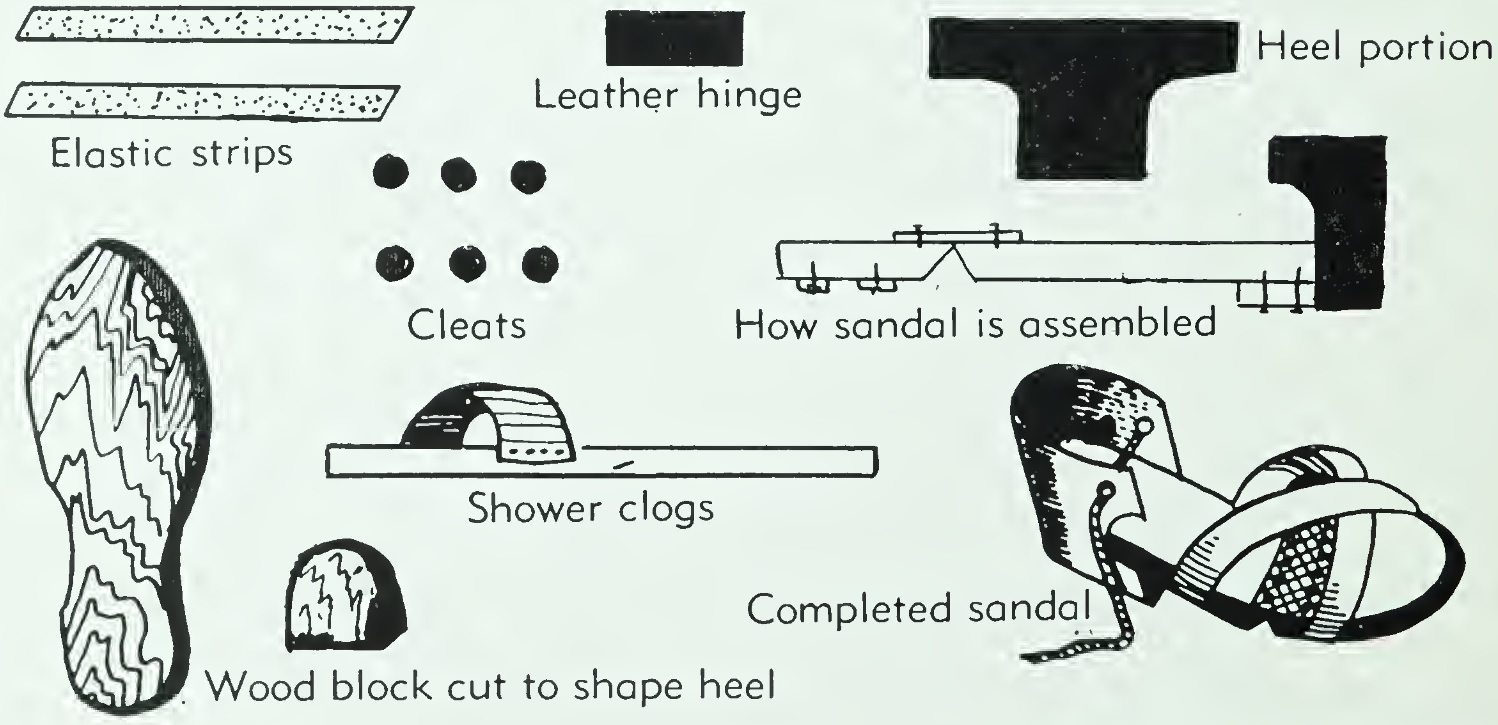
Folding Tray Stand

Materials required—twelve feet of 1″ x 1″ stock, six feet of ½″ dowel, drill, saw, glue, sandpaper, paint, upholstering webbing, nails.

1. Cut four legs from 1″ stock to size as shown in diagram.
2. Drill ½″ holes at points indicated, taking care that the holes are bored only part of the way through except for the one hole in each of the inside legs through which the dowel passes into the outside legs. These holes are bored and then slightly enlarged with sandpaper so that the inside legs can turn freely about the centre dowel.
3. Cut four pieces of dowel 1½′ long. Draw diagonals to find centre of end of stock. Drill ½″ hole ¾″ deep and insert one of the cut pieces of dowel which has previously been brushed with glue. In the top rail drill a ½″ hole, ¾″ deep to fit that



Wooden sandals



portion of the dowel extending from the legs; assemble all parts by gluing.

4. Sand, shellac and paint the stand in a colour to harmonize with the tray it is to support. When the paint is dry, nail two strips of 2″ webbing over the top rails. Shape the lower ends of the legs so that the stand rests securely on the floor.

ROOM SIGNS

Materials required—plywood, coping saw, drill, cardboard, shellac, enamel paints, brackets, picture wire.

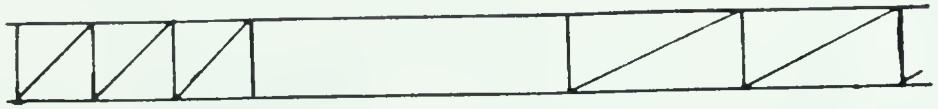
1. Collect diagrams, pictures or symbols that are representative of the work carried on in each of the classrooms. Keep the units as simple as possible. See illustrations.
2. Decide upon a shield form to be used. Use this form as a template for all shields to be used.
3. Transfer shield shapes to wood. Cut as many shields as there are rooms in the school.
4. Sand surfaces and edges. Drill holes 1″ below the upper edge and at least 4″ apart.
5. Enlarge the units to be used so that they will fill the space provided.
6. Use a simple and uniform lettering scheme for all shields.
7. Trace design unit and lettering on both sides of the shield.
8. Shellac. Allow to dry. Paint. Use a uniform colour scheme for all the shields, which will harmonize with the colour used in the corridors. Allow to dry. Varnish both surfaces. Allow to dry.
9. A simple bracket may be made in class or bought from the local hardware store. Attach bracket to door jamb and suspend shields.
10. Similar shields may be used in connection with Social Studies by having individual members of the class collect the Coats of Arms of (a) noted historical figures, (b) provinces, and (c) neighbouring municipalities and schools. These, suitably decorated, may serve as awards for inter-form athletic contests.

SANDALS

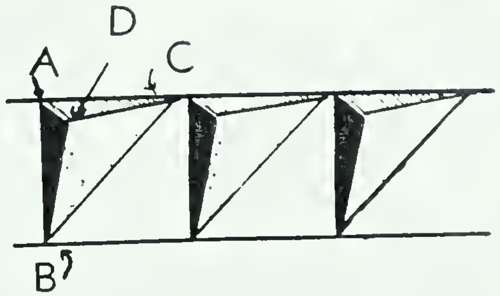
Materials required—scrap wood cuttings at least $7/8''$ thick and 4″ wide, length determined by the length of the foot, scrap leather, thonging or cord, hammer, tacks, elastic webbing (old suspenders are excellent for this), coping saw, shellac, enamel paints, sandpaper, plywood scraps.

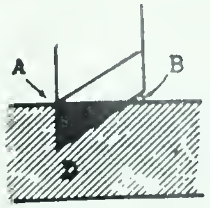
1. Outline shoe shape on wood. Cut two pieces. Sand to a satin finish.
2. Make and attach $1/4''$ plywood heels to soles.
3. Make a v-shaped transverse cutting through the sole pieces just behind the last joint of the big toe. See diagram.
4. Attach the two parts of the sole by nailing a piece of leather across the cut to act as a hinge. Nail elastic strips into place.
5. Cut out heel supports and nail to the heel end. Make holes for thong or cord.
6. The sandals may be made more colourful by the addition of paint on the edge of the sole, and less noisy by attaching leather cleats to the toe portion of the sole.
7. To make shower clogs, outline the shoe shape on wood, cut two pieces and sand to a satin finish. Cut a wide strip of elastic or upholstery webbing and nail across clog as shown in diagram.

Sandal-making in Ancient Egypt. Copy of a fresco in an 18th Dynasty tomb.

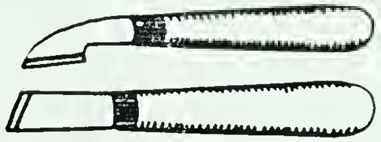


Practice pattern

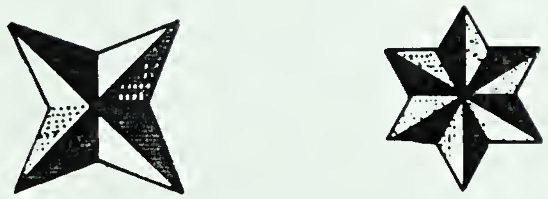


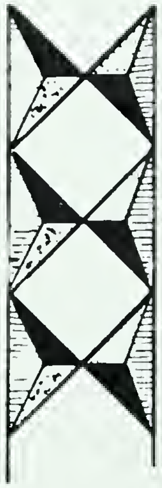


Cross section showing initial vertical cut into wood

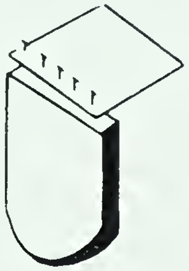


Chip carving knives

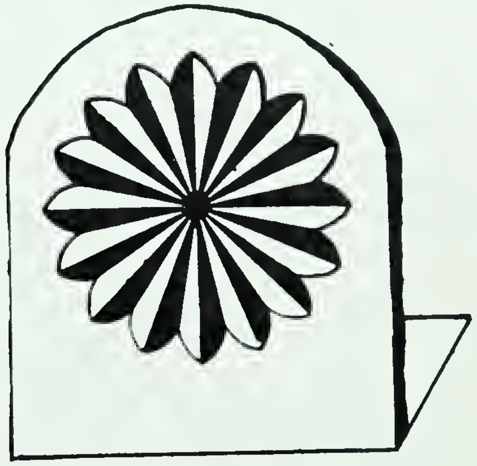




Chip carving patterns

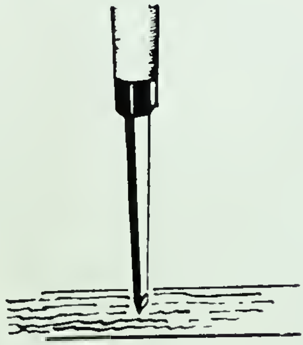


Fastening metal to wood



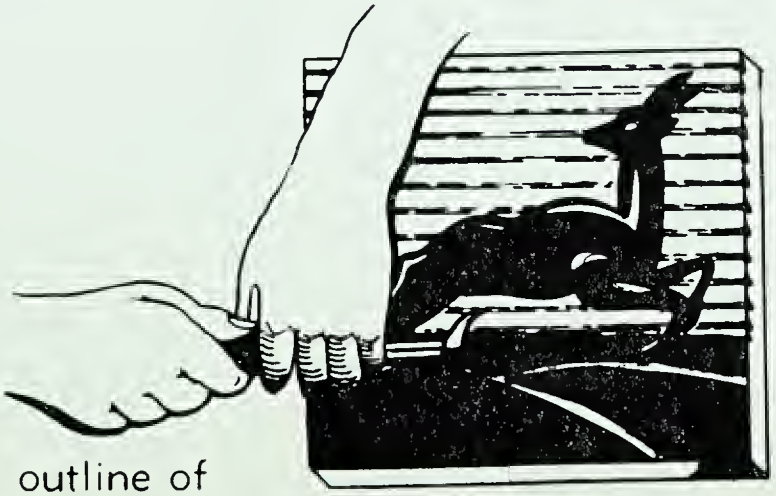
Decorating a book end

Relief carving



Making vertical cut along the outline of decorative unit

Incised scroll



Use gouge to cut small grooves up to unit.

Decorated butter tub

Decorated wooden mixing bowl

CHIP CARVING A BOOK END

Chip carving is the simplest form of the wood carver's art. It has been practised in widespread localities—from the South Sea Islands to Scandinavia, and its history ranges from primitive to modern times. Through the use of this method the student will become familiar with the simple carving tools, and at the same time get to know something of the resistance offered by the grain and fibre of the wood to such tools. Book ends, frames and boxes for various purposes can be effectively decorated by this type of carving.

Materials required—A chip carving knife or chisel is ideal for this work; however, an ordinary jack-knife, or a knife made from an old hack-saw blade will do good work. The blade must be kept *sharp*. Clean, dried, unfinished wood (preferably basswood), pencil, ruler, compasses, oil stain, sandpaper, C clamp, heavy galvanized tin, metal shears, nails, hammer, felt.

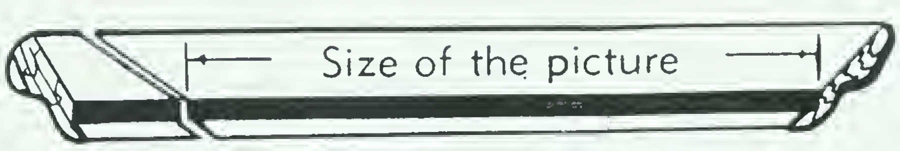
Practise cutting out the various-shaped chips on scrap wood until you feel confident and skilful enough to decorate the surface of some finished article.

1. Clamp scrap wood to the table.
2. On the wood, draw two parallel lines 9″ long and ¼″ apart.
3. Mark off the first five inches of space between the lines into ¼″ squares. Leave a 1″ space and mark off the remaining 5″ into rectangles ½″ long and ¼″ wide. In each square and rectangle join one diagonal. See diagram.
4. Mark A as point of deepest cut.
5. Holding the knife vertically, push the point into the wood at A and along the line AB until the heel of the blade touches point B. See diagram.
6. Withdraw the knife. Again the knife is held vertically and the point is pushed into the wood at A along AC until C is reached. The second cut should be such to sever the wood fibres at A completely. Withdraw knife.
7. Holding the knife at an angle of 30°, push the point of the blade into the wood at C and draw it along BC in direction of B.
8. At the same angle, cut along this line in the direction of A until the blade has reached D. Now a small triangular chip can be removed leaving a similarly-shaped hole in the wood. Various combinations of these holes can be used in making a border or all-over pattern.
9. Carefully plan and draw the design on paper before transferring it to the surface to be chip-carved. Use the ruler for straight lines and the compasses for arcs or circles. The illustrations may provide suggestions to be used in the pattern.
10. When the carving is completed, remove any pencil marks or fingerprints using very fine sandpaper, 000 grade.
11. Apply the oil stain with a flat brush in the direction of the grain. Work it well into the wood; finally, wipe the surface with a soft cloth to remove excess. Allow to dry.
12. Sand surface again to remove any hairy wood fibres that may have risen due to the staining. Dust surface with a soft cloth.
13. Apply a thin coat of floor wax, being careful not to get too much wax into the carving. Allow to dry and polish with a soft cloth.
14. Cut metal and felt. Attach as shown in the illustration.

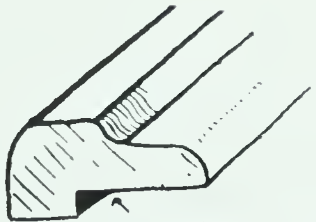
INCISED CARVING

Materials required—wooden plaque or bowl, veiner and gouge chisels, chip carving knife, large C clamp, sandpaper, stain, shellac, wax.

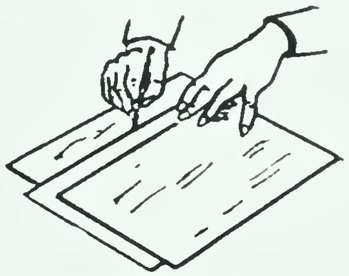
1. Plan decorative pattern on paper; enlarge or reduce to required size.
2. Cut wood to size. Carefully sand all surfaces. Use carbon paper to transfer the pattern from paper to the wood.
3. Before beginning to carve on the plaque, use chisels and knife to practise on waste wood. Make cuts that are vertical, with,



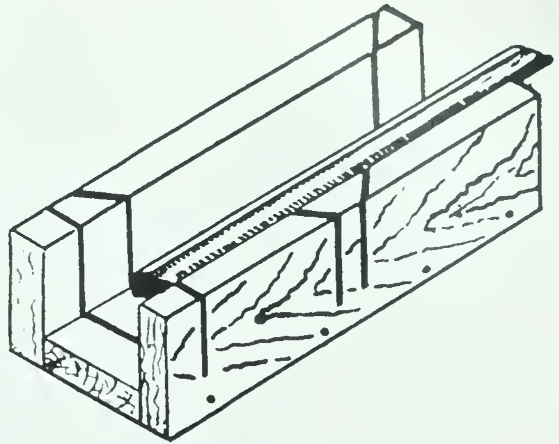
Picture molding



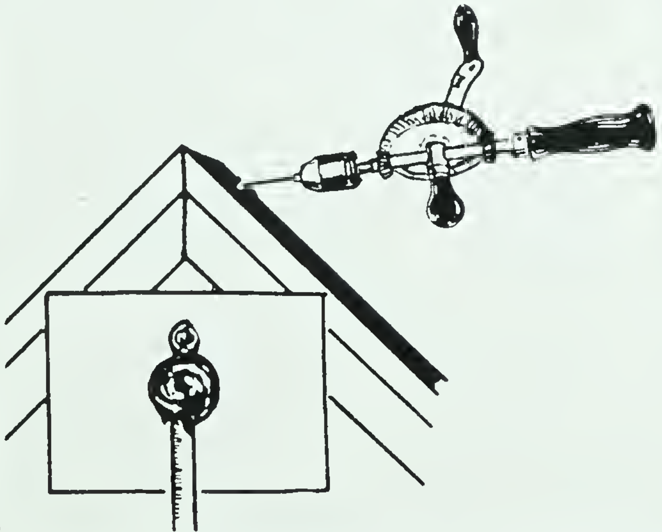
Rabbet edge



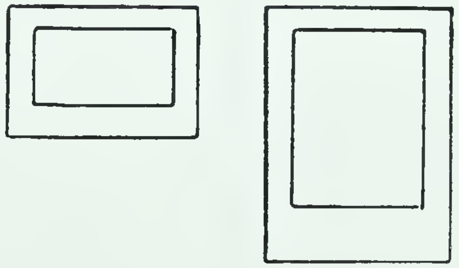
Cutting glass



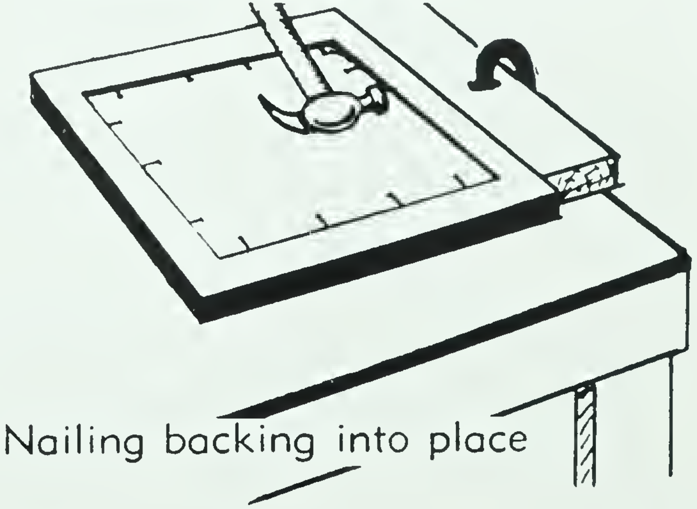
Mitre box showing molding ready to be cut



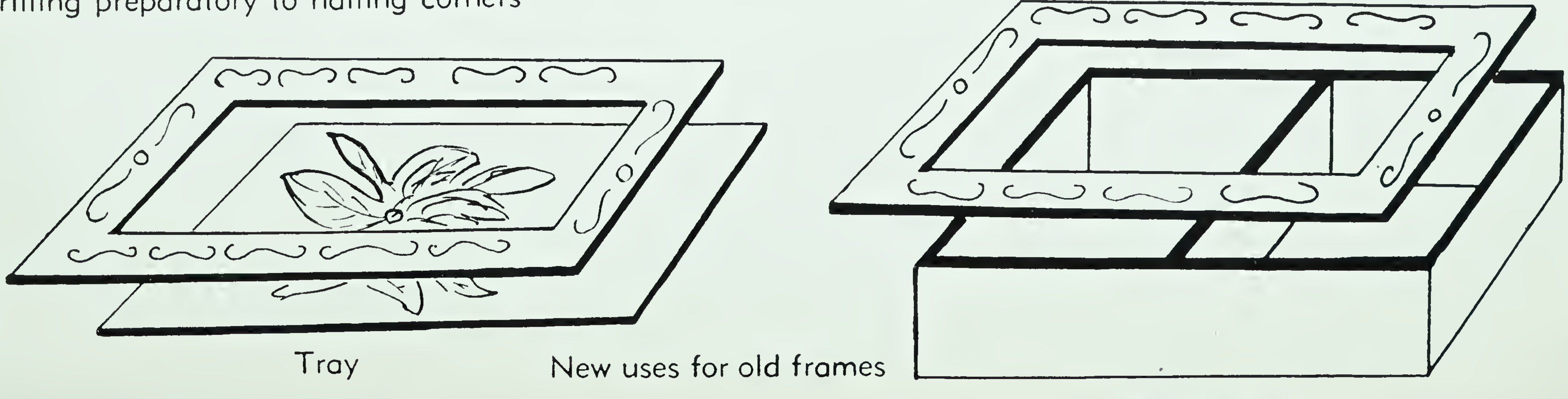
Drilling preparatory to nailing corners



Mats suitable for pictures



Nailing backing into place



Tray

New uses for old frames

Shadow box

across, and at angles to the grain to get the "feel" of the resistance offered by the wood to the chisels. Carving should be started on the plaque when a scroll can be made with moderate success.

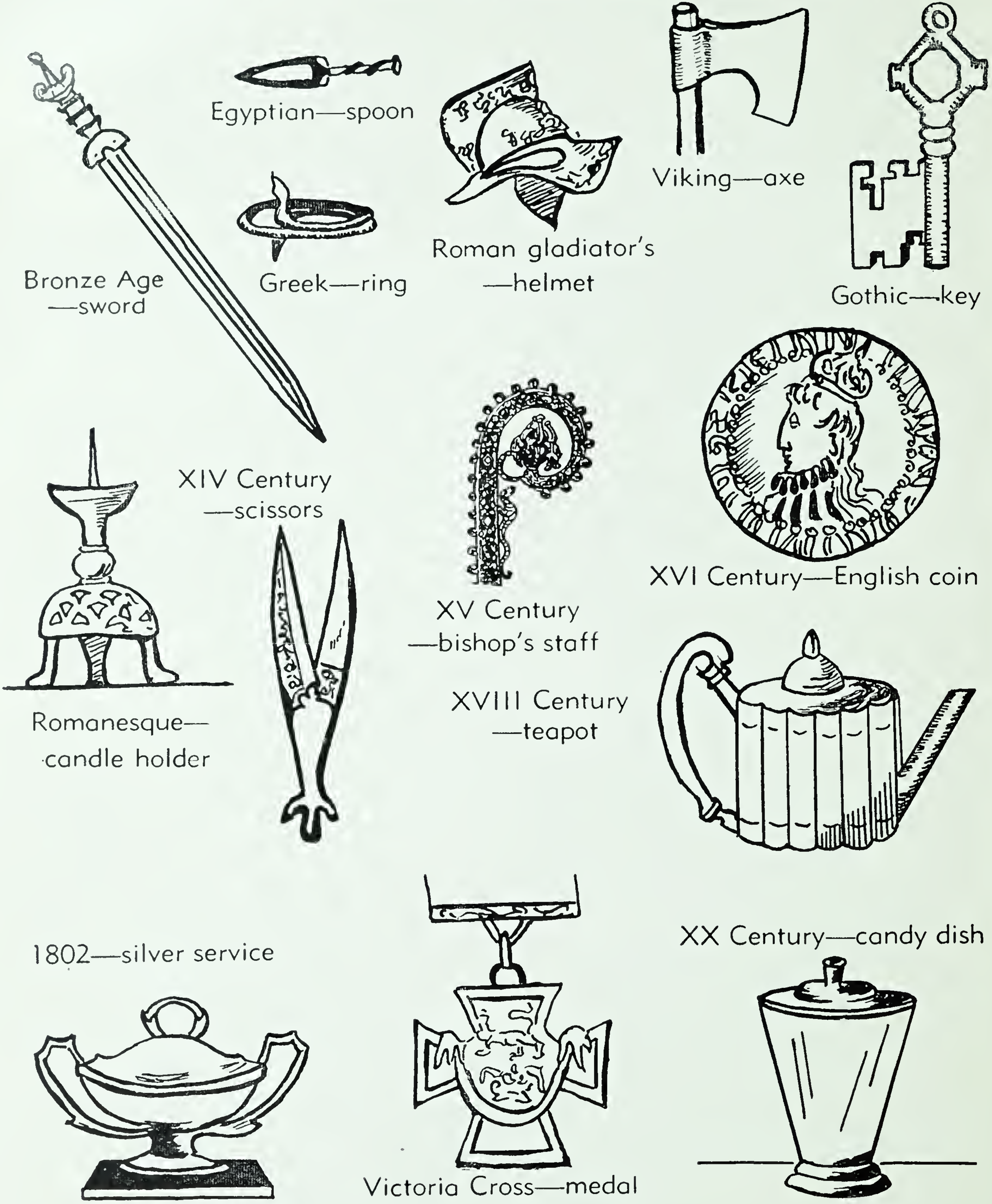
4. Use a large C clamp to fix the plaque to the working surface. Hold the knife firmly while making vertical cuts at least 3/16″ deep at the outline of the decorative unit. Use the gouge or veiner to make parallel grooves up to the pattern. Remember that the chisel should change from one hand to the other as the work progresses, from right to left or the reverse, the other hand being used to guide it. When the carving is complete, dust all particles from the surface and shellac or wax.
5. From the hardware store, wooden mixing bowls or undecorated wooden spoons and forks may be procured and used for carving, or with the wax removed, the bowls might be painted to make colourful table centrepieces or salad bowls. Discarded butter tubs can be reclaimed and used as toy catch-alls or firewood boxes.

Picture Frame

Materials required—picture molding—can be bought ready-made in various sizes and patterns, mitre box, back saw, hand drill, hammer, brads, glass cutter, sheet of glass, steel square, picture mat, scissors, glue, Kraft paper, wood glue.

1. Accurately measure the length and width of the picture to be framed.
2. On the rabbet edge of the molding, mark off the long dimension. See diagram.
3. Place measured piece of molding in the mitre box, so that the pencil mark will be in line with the 45° cut of the box. Hold molding firmly against wall while sawing the 45° angle. Repeat cutting at other end to get molding to the proper size.
4. Use this piece of molding as a template for the other length.
5. Mark off short dimension of the picture on molding. Repeat 3 and 4 to get short sides.
6. Brush glue over both mitred edges. Place one long side and one short side in the vise as shown. Drill holes for brads. Nail, being careful to keep the sides from slipping during nailing. Assemble the other two sides in the same way, and then the entire frame.
7. To cut glass to fit the frame—
   (a) Accurately measure the inner dimensions along the rabbetted edge;
   (b) Mark dimensions on the glass 1/16″ shorter and narrower than the frame dimensions;
   (c) Put glass on perfectly flat surface, preferably an old carpet to prevent slipping while cutting;
   (d) Place one edge of the steel square along a straight edge of the glass 1/16″ within the dimensions on the glass to allow for the distance between the edge of the cutter and the cutting point;
   (e) Hold glass cutter as you would a pencil;
   (f) Start at a point farthest away from you and draw the cutter along the edge of the steel square toward the body with a firm, steady stroke—one stroke should be sufficient;
   (g) When the scratch has been made, slide the glass so that the waste portion is now over the edge of the flat surface. The waste portion is removed by gripping it with pliers and giving it a sharp turn of the wrist—all that is necessary to make a straight, clean edge.
8. In cutting the mat for the picture, use the same dimensions as were used for the glass. Remember that the sides and top of the mat usually have the same width, while the bottom space is wider. See diagram. If this were not done, and all spaces were made equal in width, the

Metal as an Art Material for Everyday Things Through the Ages



picture would *appear* to be below the centre.

9. Place the glass into the frame, the mat next to the glass, and the picture next to the mat. Put heavy cardboard or thin plywood behind the picture to serve as a backing.
10. Hammer brads into the rabbet edge by sliding the hammer over the surface of the backing, the force of the hammer being taken by a block of wood held securely against the outer edge of the frame. See diagram.
11. Protect the picture from dust by covering the back with a sheet of Kraft paper slightly smaller on all sides than the outer dimensions of the frame. Glue the edges only; dampen in the middle—the shrinkage will make the paper taut.
12. Put screw eyes one-quarter the distance from the top. Use a short piece of picture wire so that it will not be seen above the frame.
13. Use old frames that have been refinished to make trays or shadow boxes as illustrated.

QUESTIONS

1. How is plywood made? Account for its strength.
2. What advice would you give to a fellow student who was about to use for the first time each of the following tools—coping saw, hand drill, chip carving knife?
3. What materials are used to clean brushes that have been used in house enamels? Varnish? India ink? Shellac?

ENRICHMENT ACTIVITIES

1. Record any literary references made to wood.
2. Consult Hibben *The Carpenter's Tool Chest* for the story of the development of the saw, axe, and square. Make a record of the illustrations.
3. Make a collection of the common woods of your community.
4. Visit and record your impressions in words or diagrams of a local planing mill or lumber yard.

METALCRAFT

INTRODUCTION

"It is almost as difficult to imagine our world without metal as to imagine it without colour. From aeroplanes to safety pins, from suspension bridges to wrist watches, metal products surround us on every side. Steel construction has given a new character to our architecture, while other uses of metal have made possible our systems of heating, lighting, and plumbing. But in addition to such utilitarian concerns, the beauty of various metals is as widely appreciated as ever. Metal is truly a basic material in modern living."

(Quoted from "Art To-day"—Faulkner—by kind permission of Henry Holt & Co.)

TOOLS AND ACCESSORIES

Sheet metals—copper, brass, roofing tin, tin from discarded but clean cans;

Wire—various kinds and gauges;

Curved tin snips—for cutting sheet metal;

Hardwood mallet—for flattening metal;

Ice pick—used as a scriber, and to dent metal before drilling a hole;

Pair of dividers—to draw circles or arcs on metal;

Steel square—used to draw straight lines and right angles on metal;

Ball pein hammer—for decorating and hollowing metal;

Hand drill and drill points—to make holes in metal;

Long nosed pliers—used to bend small pieces; to hold metal over a flame;

File and emery cloth—used to remove sharpness from freshly cut edges;

Escutcheon and ornamental nails—to attach sheet metal to wood;

Bending blocks—used for bending metal;

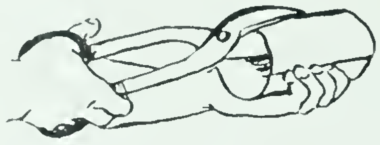
Bracelet hammering jig;

Liquid solder—used to join different kinds of metal together;

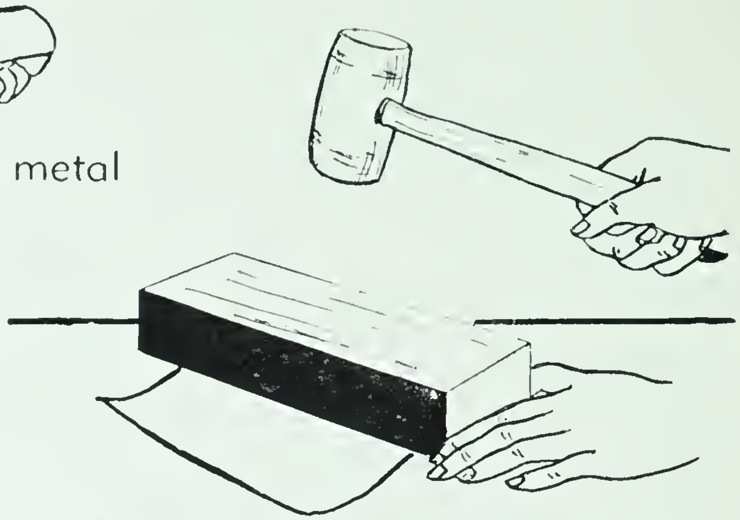
Metal lacquer—to prevent metal from tarnishing;

Etching solution and asphaltum varnish—to decorate metal;

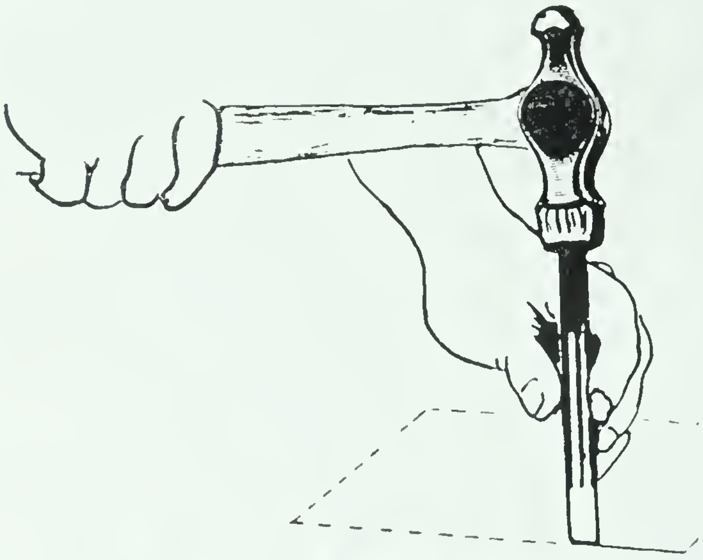
Carbon paper, cardboard, paper clips, pins, etc.



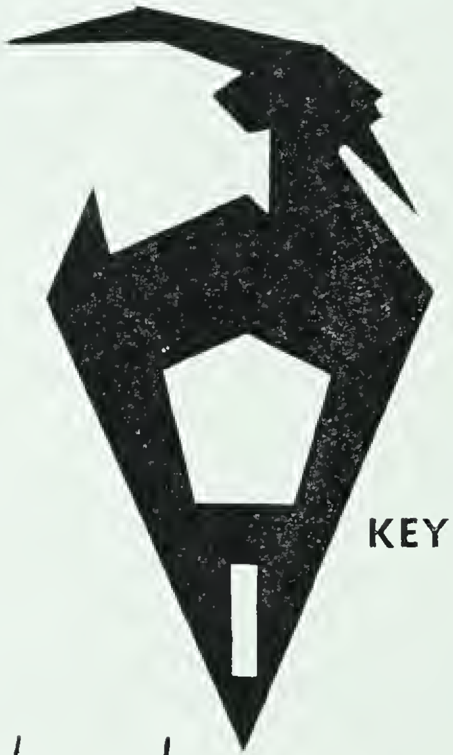
Use of snips to cut metal



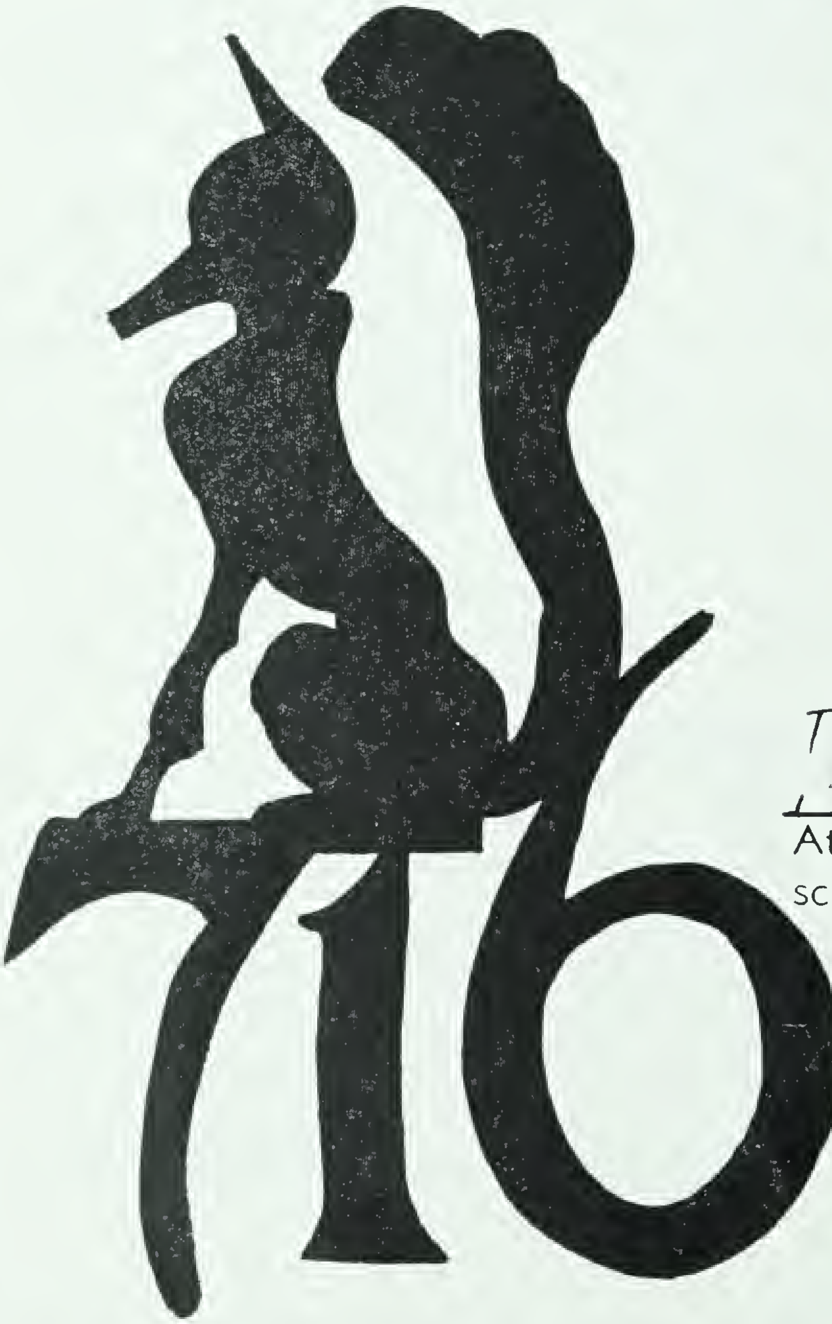
Flattening sheet metal by means of a wooden block

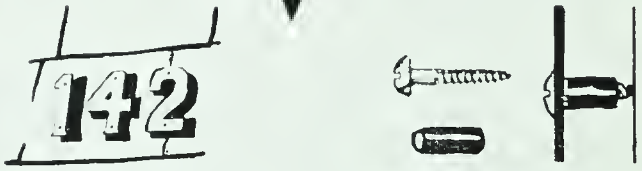


Using cold chisel for interior cutting

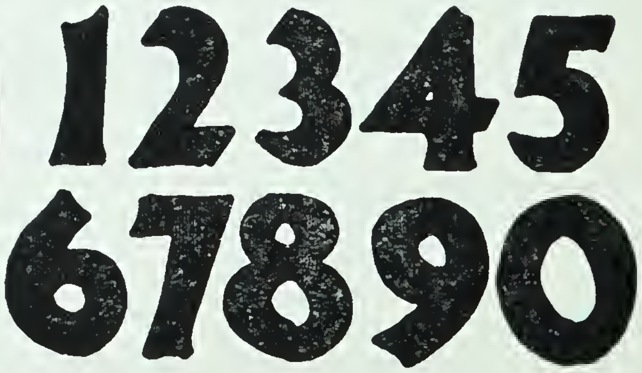


KEY PLATE





Attaching plate to wall for raised effect, screw, piece of rubber tubing



Suitable numerals for address plate

ADDRESS PLATE

Materials required—sheet metal 8″ x 5″, or large tin can, snips, scriber (ice pick), cardboard, scissors, india ink, house enamel paint, escutcheon nails, paper clips, can-opener, emery cloth, cold chisel.

1. Get a design pattern whose outline, shape, or silhouette is pleasing, and which bears some relationship to the interests, hobbies, etc., of the occupant.
2. Attach the numerals to the pattern so that they will be in keeping with its unity; they should not appear to be an afterthought, but seem to belong to the pattern. A suitable system of numerals for this work is given.
3. When satisfied with the arrangement of the design unit, transfer to thin cardboard by means of carbon. Paint this outline with india ink to get an idea of the appearance of the finished product.
4. The clean, discarded tin cans will yield an almost unlimited source of sheet metal for this work. Cans that have been opened with the type of can opener which neatly removes the top and leaves no jagged edges should be used. It is then an easy matter to use the snips to cut along both sides of the soldered seam. *Caution*—freshly cut tin is always sharp. *Be careful.* Dull edges by rubbing them with emery cloth. To flatten this curved sheet of metal, place it on a large hardwood block, and use a wooden mallet.
5. Cut out the inked-in unit, and using it as a template, transfer it to the metal. The cut-out is fastened to the metal with paper clips, or is held firmly to prevent it from slipping, and the scriber scratches the outline directly on the metal.
6. The tin snips are used to cut out the pattern from the metal. Always cut just outside the guide lines, turning the metal as the work progresses.
7. For large interior cuts use the cold chisel to cut away enough of the interior to permit the use of the snips. Always strike the cold chisel hard enough to drive it through the metal.
8. Emery rough edges.
9. Paint the unit in a solid colour, a contrast to the background, or in keeping with the trim colour: use house enamel; allow to dry.
10. Nail address plate to the background using escutcheon nails, or using small bore rubbing tubing as blocks have design stand away from the background.

KEY PLATE

Materials required—Same as for Address Plate.

1. Get a design unit whose silhouette is pleasing and bears some relationship to the role or use of the room. Try to incorporate the spaces left for the knob and key as essential parts of the design.
2. Repeat steps 2 to 8 inclusive of Address Plate.

* * *

Art lives upon discussion, upon experiment, upon curiosity, upon variety of attempt, upon the exchange of views and the comparison of viewpoints; and there is a presumption that those times when no one has anything to say about it . . . are not times of development.—*Henry James*

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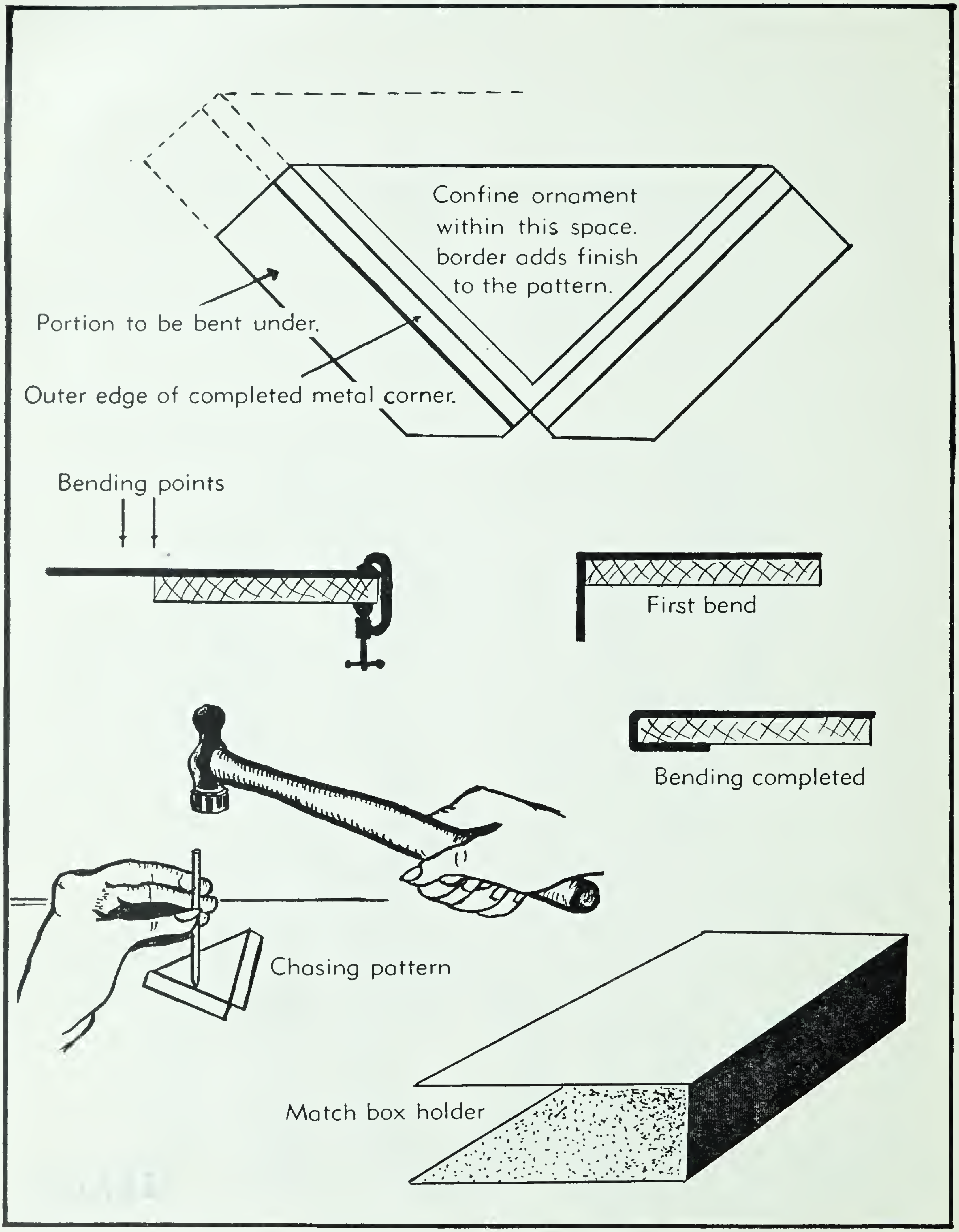

Confine ornament within this space. border adds finish to the pattern.
Portion to be bent under.
Outer edge of completed metal corner.
Bending points
First bend
Bending completed
Chasing pattern
Match box holder

Blotter Corners

Materials required — sheet metal, snips, scriber, nail, hammer, cardboard, scissors, emery cloth, steel wool, metal lacquer, 3/16″ plywood, beeswax, candle, matches, C clamp.

1. Use pattern as illustrated. A larger pattern may be secured by simply extending the lines dotted in the diagram.
2. When the size is determined, cut out a cardboard pattern and use it as a template for the four metal corners. Outline template with scriber and use snips to cut the metal shapes.
3. Use the template to outline the shape on a sheet of paper. Plan an appropriate ornamental pattern for the upper surface or the metal corner.
4. When satisfied with the pattern, transfer it to the metal by (1) heating the metal over a lighted match or candle; (2) putting a small piece of beeswax on the upper surface of the heated metal and allowing it to melt; (3) spreading the melted wax with a soft cloth so that there is a thin film of wax over the entire surface; (4) allowing the metal to cool and the wax to harden; (5) putting a reversed drawing of the design face down on the waxed surface of the metal; and (6) rubbing the paper with any smooth surface such as a spoon or bottom of ink bottle. The carbon of the pencil will be transferred to the wax. Using the scriber follow the lines on the wax to scratch the pattern on the metal.
5. Emery the point of a 2″ fiinshing nail to dull the point. Put the metal on a pile of magazines. Hold the nail erect as shown. Hammer on scratched outline with a wrist movement. Do not strike the nail too hard lest it go through the metal. Try to keep the nail marks evenly spaced and even in depth. This decoration method is known as "chasing".
6. To bend sheet metal it is convenient to have a hardwood pattern the exact size of the finished article. For the blotter corner a 3/16″ width is required between the upper and under surfaces. Place the edge of the bending block *just* inside the line along which the metal is to be bent. Clamp metal and block together. See diagram. Take the free end of the metal and bend it slowly in the direction of the block. Use a mallet to square up the metal with the side of the block.
7. Rub the entire surface with fine steel wool.
8. Lacquer the entire surface. Allow to dry.

To Make Metal Lacquer

To 3 oz. of acetone (nail polish remover) add several pieces of plastic (from a tooth brush handle).

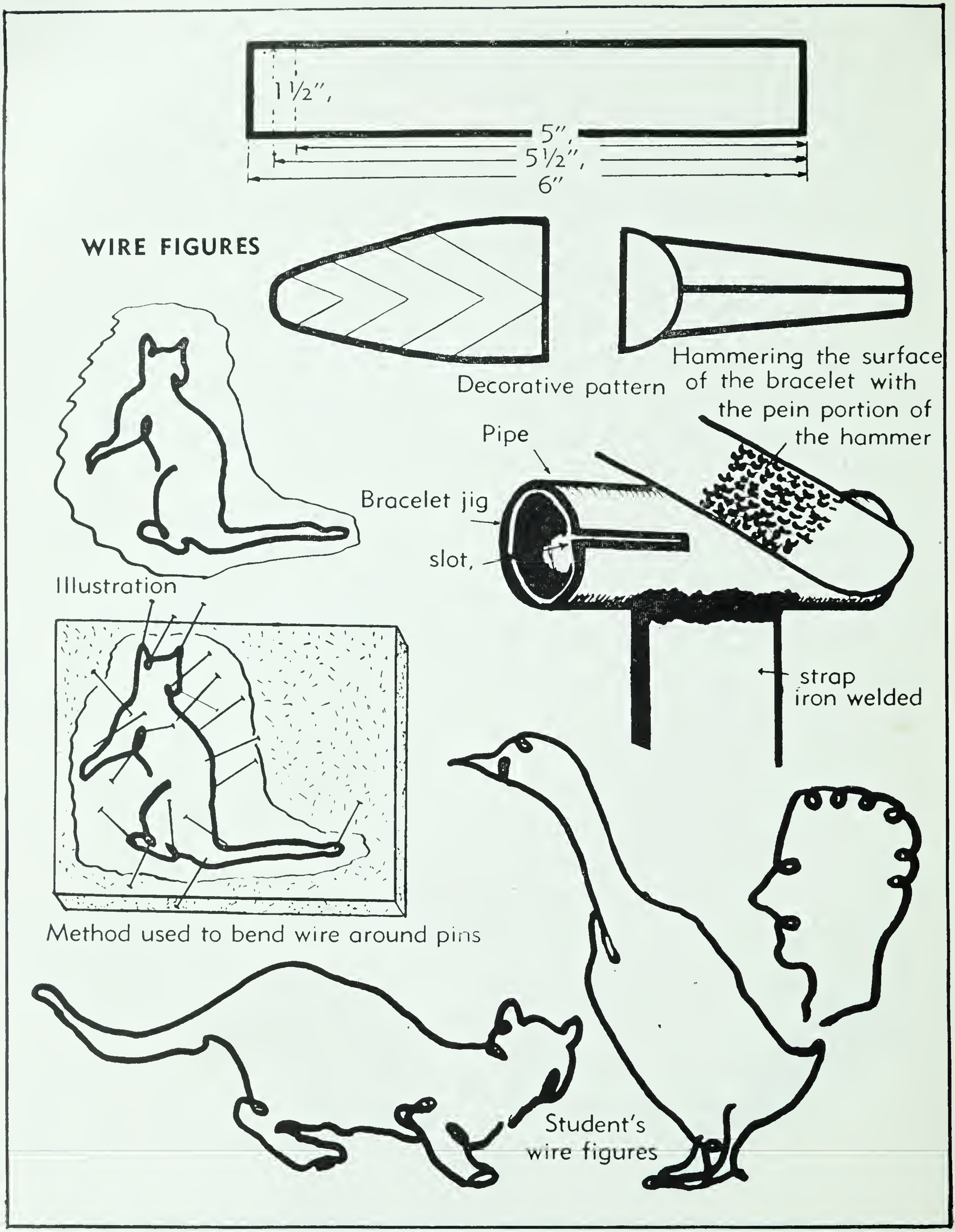
Allow mixture to stand until the plastic has dissolved.

Shake the solution before using.

Use a soft brush to apply the lacquer.

Clean the brush in wood alcohol.

"Here's metal more attractive."—Hamlet III-2


1½",
5",
5½",
6"
WIRE FIGURES
Decorative pattern
Hammering the surface of the bracelet with the pein portion of the hammer
Pipe
Bracelet jig
slot,
strap iron welded
Illustration
Method used to bend wire around pins
Student's wire figures

BRACELET

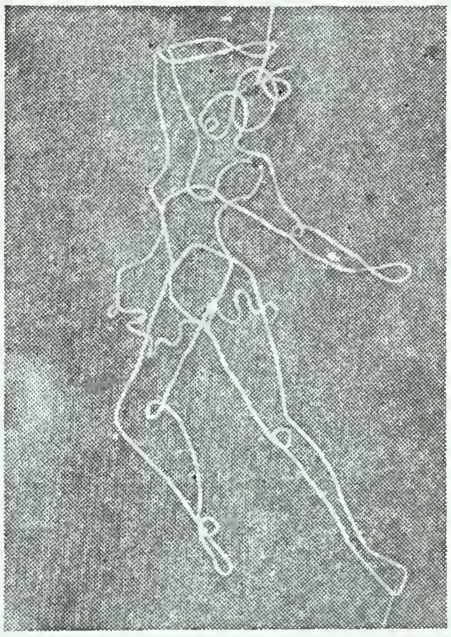
Materials required—18 gauge sheet copper, size of stock as shown in diagram, snips, scriber, 2″ finishing nail, ball pein hammer, emery cloth, steel wool, metal lacquer, bending jib, beeswax.

1. Cut metal oblong as illustrated. The longer size is for a wider wrist.
2. Trim to shape. Note ends of finished bracelet. Emery rough edges.
3. Plan decoration and transfer it to metal. Chase pattern.
4. An alternate form of decoration is hammering. To leave the hammer marks on a hand-made metal article is fashionable at present. The very thing that some former metal craftsmen wished to avoid, has now become a characteristic that is consciously, and conscientiously, included. The whole article is hammered by the ball portion of the hammer, no regular pattern being followed.
5. Shape the metal to fit the wrist over a bending jig. For smooth curvature use numerous light blows, moving the bracelet along as it begins to curve slightly. Work from the middle towards the ends.
6. If an "antique" effect is desired, the bracelet is immersed in a solution made by dissolving a small piece of potassium sulphate in about 4 oz. of water. The longer the bracelet remains in the solution, the darker the effect will be. Remove from solution. Dry with a soft cloth. Shine using steel wool. The polishing will only effect the raised portions, giving the metal a mottled appearance that is characteristic of old copper.
7. Lacquer. Allow to dry.

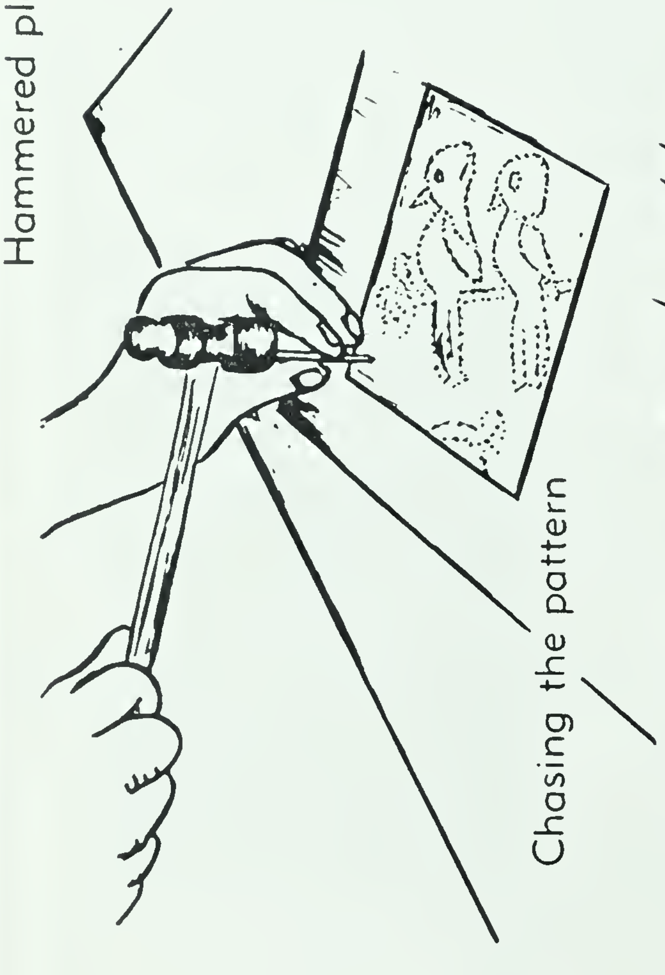
WIRE FIGURES

Materials required—roll of furnace wire, pins, pliers, pressboard.

1. Get a picture or diagram in which the line quality is stressed.
2. Pin the diagram to a piece of pressboard—the material commonly used for bulletin boards.
3. Place pins along the line of the diagram wherever the direction or the shape of the line changes. See diagram.
4. String wire along or around these points to get the desired outline.
5. Repeat for at least two other diagrams to become familiar with the method of using wire for this purpose.
6. Draw from memory a tree, dog, cat, aeroplane, etc., in which one continuous line outlines the shape. Repeat steps 2 to 5 inclusive.
7. Without using any diagrams, plot the points about which the wire would need to pass to produce the characteristic outline of the shape you have in mind. To test the accuracy of the outline, see whether other students can recognize what you are trying to do.
8. However, if you just cannot think of something to make, perhaps the words—fish, sheep, human profile, elephant may start a train of thought.

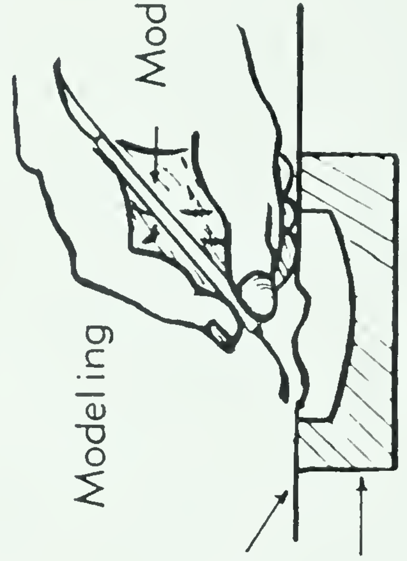


Wire figure: Grade IX



Chasing the pattern

Hammered plaque



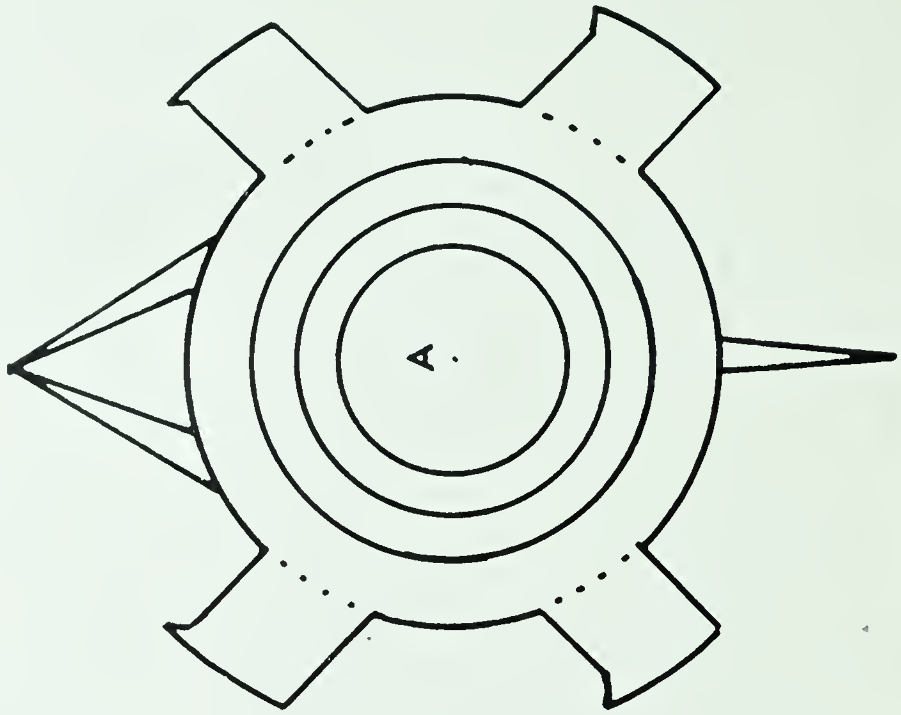
Modeling

Ash tray

Scalloped edge for ash tray

Shaping the ash tray in the mold

Hunkus the ash hound



Pattern laid out on metal

HAMMERED PLAQUE

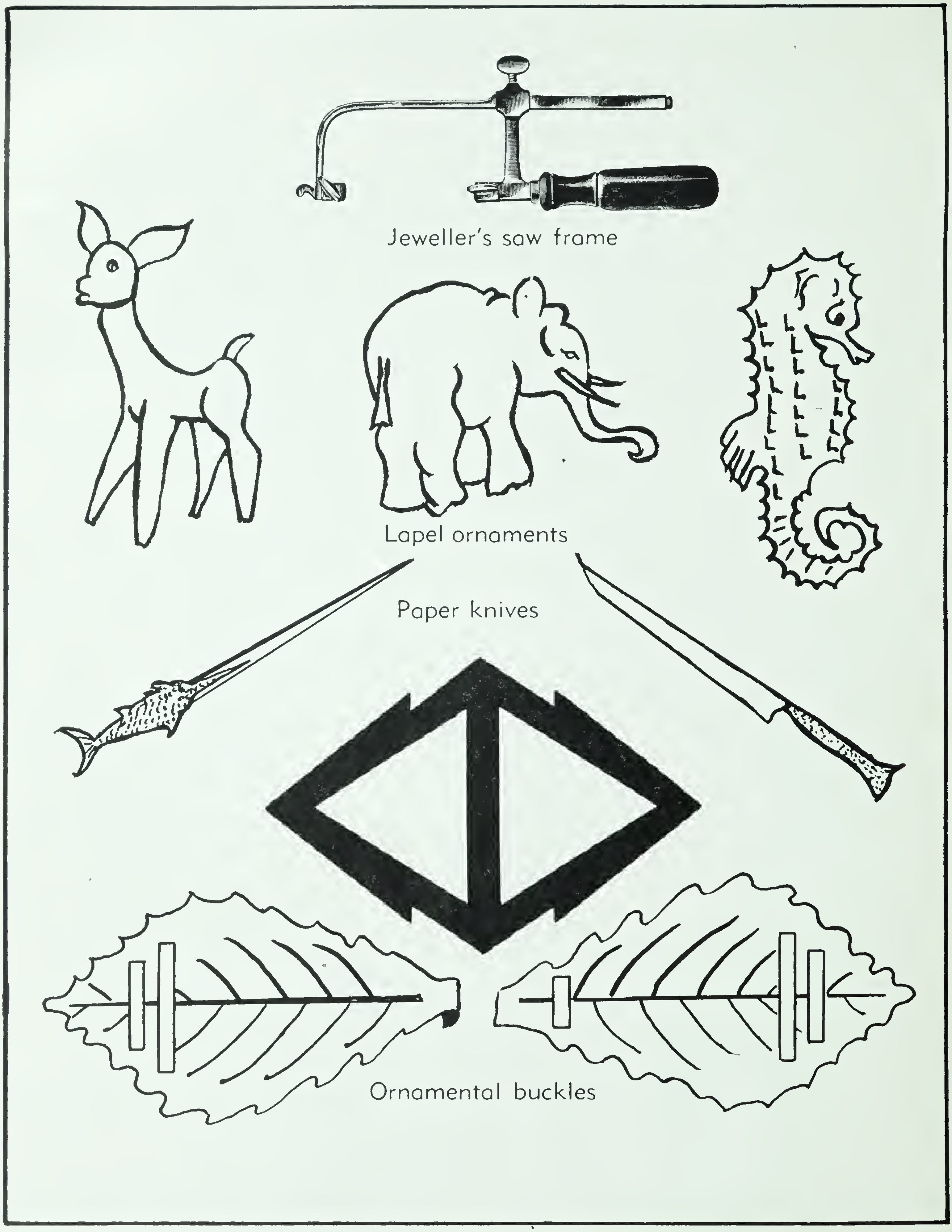
Materials required—sheet of thin tin or copper, snips, scriber, chasing tool, hammer, escutcheon nails, pliers, emery cloth, steel wool, lacquer, wooden base, shellac, sandpaper, modelling tool, beeswax, steel square.

1. Secure a pattern, portions of which can be raised—embossed—to give an impression of fullness as well as one of length and width. People, animals, ships, etc., are ideal for this work.
2. Simplify the decorative unit to remove any unnecessary details. Large masses are more effective than detail in this work. Remember to reverse the design before transferring it to the metal by the beeswax method.
3. Cut the metal to size. Test the corners with the steel square.
4. Transfer the design to the waxed metal. Use scriber to scratch it on the metal.
5. Chase the pattern outlined by the scriber by tapping a series of small closely spaced impressions with a nail.
6. With the reverse side of the metal uppermost, use a modelling tool to give fullness to those portions of the pattern that require it.
7. Stipple the background areas with a blunt chasing tool (3″ or 3½″ nail) until they are covered with scattered indentations.
8. Shine with steel wool. Lacquer. Allow to dry.
9. Cut wooden base. Be sure to allow for suitable margins. See proportions used for picture mats in Framing. Sand base. Shellac. Allow to dry.
10. Before nailing metal to the wood, mark the area it is to occupy.
11. Mark points on metal through which the nails are to be driven.
12. Nail the middle of each side first and work towards the corners. Use pliers to hold the nails firmly while nailing. Complete nailing.
13. Make and attach hanger to mount the completed unit on the wall, or, it may be planned to be mounted on a book end.

ASH TRAY

Materials required—sheet metal 8″ square (thin copper or roofing tin), ball pein hammer, wooden mold, steel wool, steel square, lacquer, wooden mallet, tin snips, dividers, emery cloth, scriber.

1. Find centre of the metal square by crossing the diagonals. Mark this point with scriber. With A as centre, describe three circles whose radii are 1¼″, 1½″, and 1¾″ respectively.
2. Locate and mark the position of the legs to be used to support tray and the cigarette holder.
3. Place the metal square over a pattern forming mold. If a mold is not available the top of a baseball bat will serve as a mold. Here, however, the ash tray will be formed by hammering it over the mold, and not into it.
4. Use the ball part of the hammer. The first strokes are confined to making a slight depression about A. The next ring of strokes is made just on the outside rim of the hammer dents previously made. Continue to make concentric rings of hammer marks until there is a definite hollow in the middle of the metal square.
5. To keep the flat portion from buckling, occasionally turn the metal over so that the curved surface is uppermost. Strike the flat portion with a wooden mallet to flatten it.
6. Replace the metal, right side up, into the mold and continue to hammer in concentric circles.
7. Occasionally strike the metal in the hollow against the side of the mold to keep the shape true.
8. Use the hammer portion of the ball pein hammer to remove any surface irregularities.



Jeweller's saw frame

Lapel ornaments

Paper knives

Ornamental buckles

9. While the metal is being worked it hardens. Should a very deep ash tray be required then the metal held by pliers must be heated (use alcohol lamp, bunsen burner, blow torch). It is then slid gently into a pickling solution (6 oz. of sulphuric acid *added* to 1 gallon of water). Allow to remain for two minutes. Use a stick to remove metal from solution, and rinse well under running water. Dry and resume hammering.
10. When the metal has been shaped so that it fits the hollow of the mold, then it is removed from the mold and excess metal is cut away from the supports and holder. Emery the sharp edges.
11. Bend supports and holder into position; shine with steel wool; lacquer; allow to dry.

ETCHING THE ASHTRAY

The ashtray may be decorated by the etching method.

Materials required—etching solution, pumice powder, asphaltum, varnish, glass or enamelled tray, plaster of Paris, beeswax.

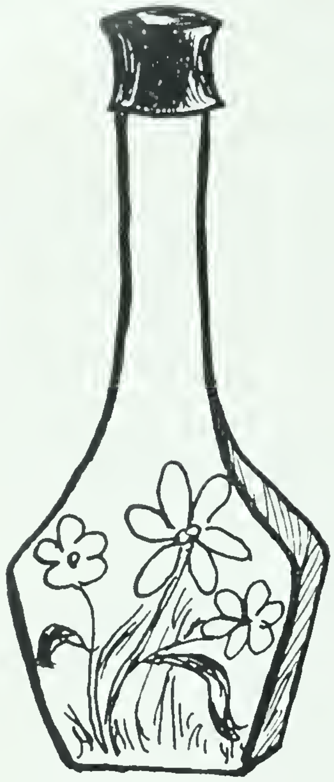
1. Clean the metal thoroughly to remove the surface oil by rubbing dry plaster of Paris over the surface with a soft cloth.
2. Transfer the design to the metal by means of the beeswax method (consult Blotter Corners 4.). Use ice pick to scratch design on the metal. Remove surface layer of beeswax by rubbing pumice powder and water over the surface; rub only in one direction. Rinse the metal in water and then dry thoroughly.
3. Cover the areas that are *not* to be etched with asphaltum varnish. Allow to dry overnight.
4. Etching solution for copper or pewter is made by adding one part of nitric acid to two parts of water. Pour etching solution into glass tray.
5. Lower the metal slowly into the solution. It is wise to have the metal rest on some glass rods and not touch the bottom of the tray.
6. The length of time that the metal remains in the solution will determine the depth to which the acid will bite into the metal Raise the metal from the solution occasionally to note progress.
7. When the metal has been etched to the desired depth, remove the metal from the solution and wash it under running water. Allow to dry.
8. Remove asphaltum varnish with kerosene or turpentine.
9. Remember to pour etching solution back into a glass-stoppered bottle.

LAPEL ORNAMENT

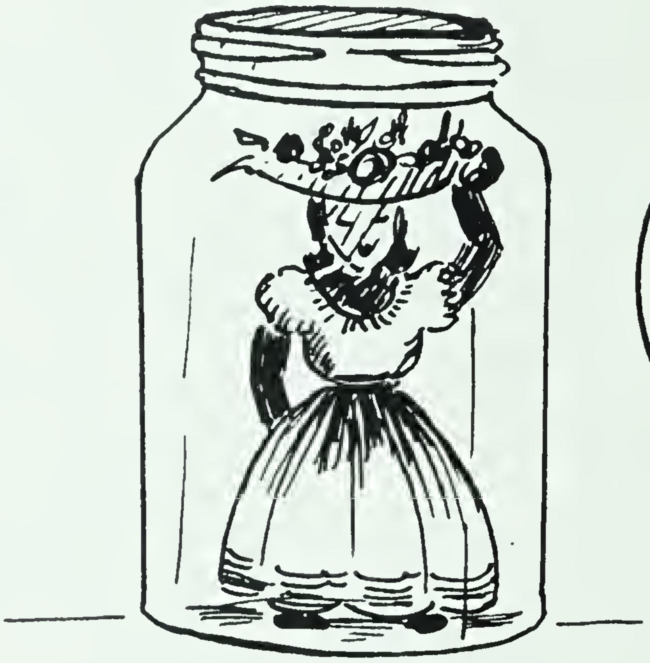
Materials required—sheet metal, tin snips, jeweller's saw, drill, sawing jig, cardboard, scriber, ball pein hammer, steel wool, lacquer, emery cloth, liquid solder, safety catch or pin.

1. Select a design unit that has an interesting outline or silhouette.
2. If the pattern is too large, reduce it so that it will be no larger than 2″ x 1½″ in the extremes.
3. Transfer the design to the metal.
4. Cut the metal using the snips or jeweller's saw. When using a jeweller's saw—
    a. Adjust the blade in the frame so that the teeth are pointing toward the handle;
    b. Rub a thin coat of paraffin over the blade to keep it from breaking through over-heating;
    c. When cutting (1) keep the saw in a vertical position; (2) cut on the waste side of the line; (3) work slowly in tight places; (4) turn the metal, not the saw;
    d. In interior cutting, scratch the surface area with an awl or scriber, drill a hole slightly larger than the width of the blade, loosen blade at the top end, insert blade through hole in the metal, and then fasten and tighten blade.

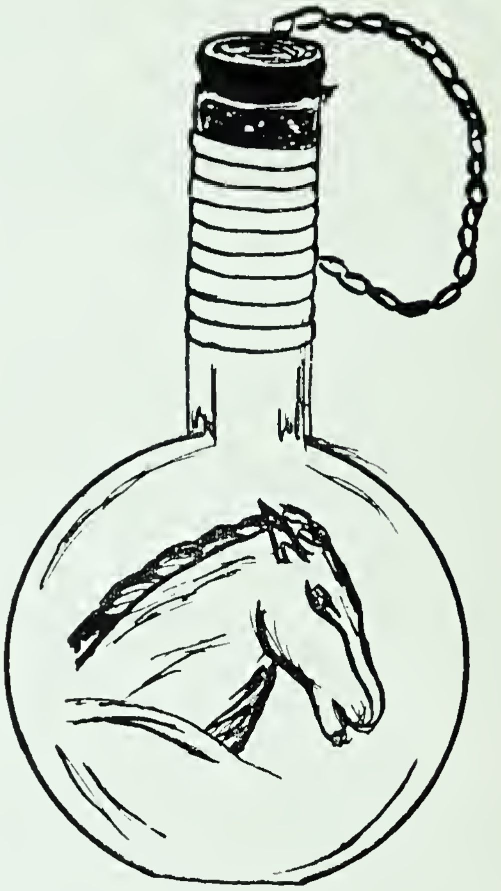
PAINTED GLASSWARE



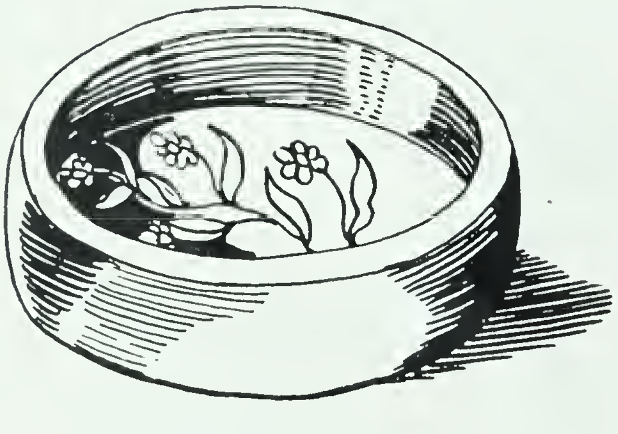
Bottle



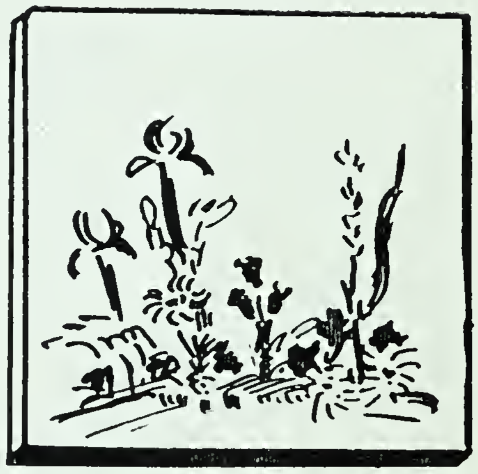
Jar



Florence flask



Coaster



Tile

5. When the sawing is completed, use emery cloth or a file on the rough edges.
6. Decorate the surface by chasing, hammering, or etching.
7. Shine surface with steel wool; cover with metal lacquer: allow to dry.
8. On back of the ornament, attach safety pin or catch using liquid solder.

Paper Knife

Materials required—18 gauge copper or brass strip, jeweller's saw, blades, cardboard, steel wool, metal lacquer, emery paper, file.

1. Select shape for paper knife that is in keeping with its purpose.
2. Transfer design shape to the metal.
3. Cut out shape using jeweller's saw. Emery or file rough edges.
4. Decorate the handle section by chasing, hammering, or etching.
5. Shine surface with steel wool; lacquer, and allow to dry.

Ornamental Buckles

In making ornamental buckles, the same materials and the same procedures are used as in the making of the paper knife. If you are interested in making this metalcraft project, investigate the possibilities of using some natural form instead of the overworked geometric forms usually found in buckle designs.

Questions

1. What two methods are used to transfer a pattern to metal? When is each used?
2. How would you explain the procedure used in making an ash tray to a boy who was absent when the demonstration was made?
3. How are each of the following made, and when is each used?—metal lacquer, antiquing solution, etching solution?
4. How does chasing differ from hammering?
5. When would you use a cold chisel? Steel wool? Asphaltum varnish? Emery cloth?

Enrichment Activities

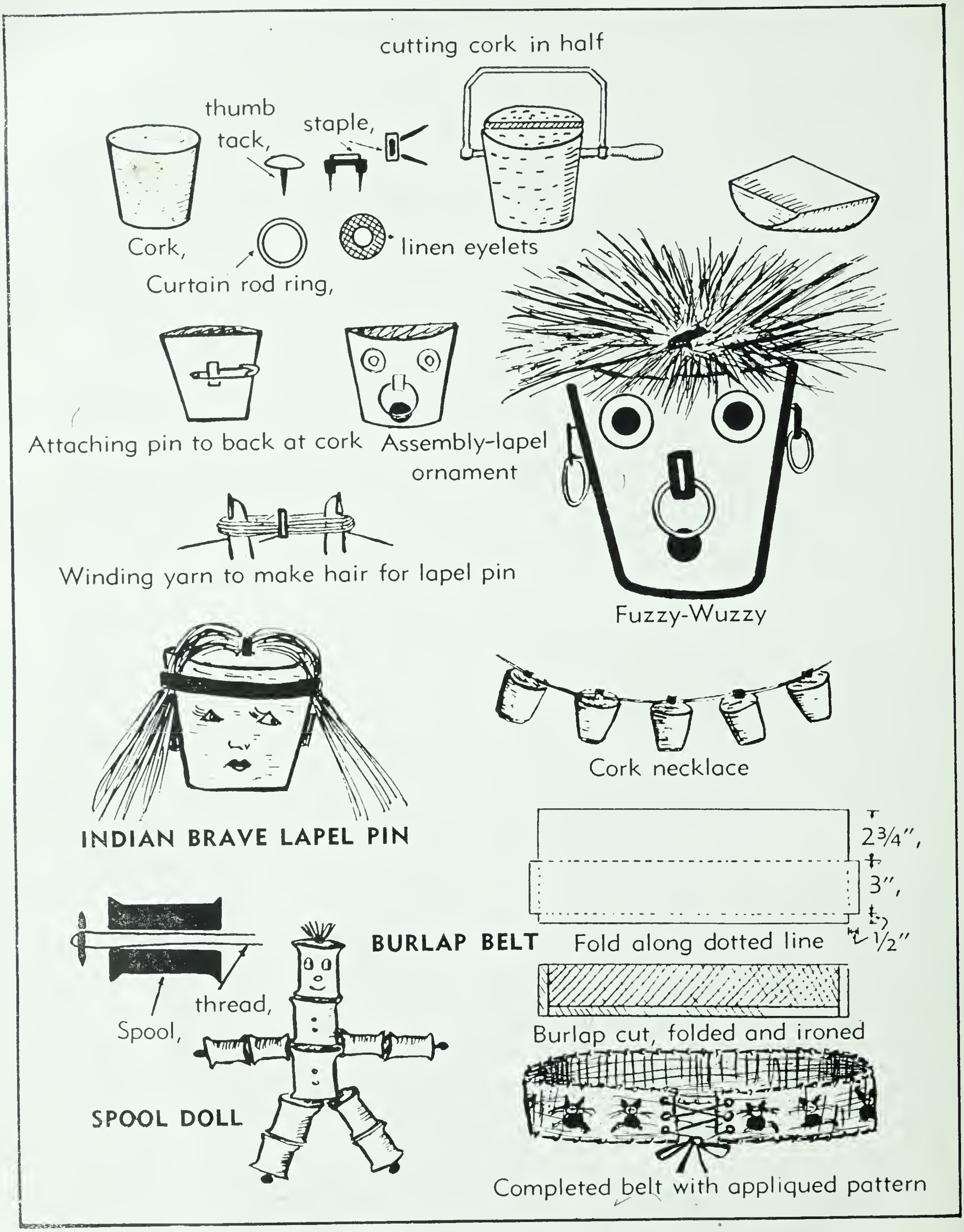
1. Make a list of the art metal articles to be found within the classroom.
2. Consult the Encyclopaedia to find out in what ways Benvenuto Cellini and Paul Revere were alike.
3. For an interesting account of early Canadian metal craftsmen, read the chapter on "Rival Silversmiths" in *Quebec—Where Ancient France Lingers*, by M. Barbeau.
4. Can you find out how (1) wire, (2) sheet metal are made?
5. From the latest edition of the *Canada Year Book* find the percentage of the precious metals used for art metal work.

MISCELLANEOUS CRAFTS

Glass Tiles, Novelty Jars and Bottles, Coasters

Here is another way in which to use salvaged materials in the artcrafts class. Collect empty bottles and jars (the ones with attractive shapes have interesting possibilities). Wash and dry them thoroughly. Use enamel paints or artist's oils to decorate the surface. If the mouth of the bottle or jar is large enough, practise painting on glass by pasting a previously-made illustration or design pattern on the inside of the bottle, and use that as a guide for painting. But do not hesitate to work free hand, for, if you are dissatisfied with the result, a clean rag will wipe the surface clean for a fresh start. Allow all completed work to dry thoroughly.

Glass tiles, secured from most dealers in hardware supplies, can be hung on the wall by using Denison's Handy Fasteners. Attractive coffee bottles can be made from Florence flasks: raffia, wool, or whipcord should be wound about the neck of the flask, and completed by a cork painted in a suitable colour. Painting the metal cover of the jar with one of the colours used on the surface, helps to give a finishing touch to your work.


cutting cork in half
thumb tack,
staple,
Cork,
Curtain rod ring,
linen eyelets
Attaching pin to back at cork
Assembly-lapel ornament
Winding yarn to make hair for lapel pin
Fuzzy-Wuzzy
INDIAN BRAVE LAPEL PIN
Cork necklace
2¾",
3",
½"
Fold along dotted line
BURLAP BELT
Burlap cut, folded and ironed
Completed belt with appliqued pattern
Spool,
thread,
SPOOL DOLL

CORK NOVELTIES

Fuzzy Wuzzies

Making Fuzzy Wuzzies has been a popular activity in most classes. The materials required are a large cork, thumb tacks, wire staples, curtain rod rings, loose-leaf linen eyelets, coloured yarn, and a small safety pin.

1. Cut cork in half with saw or knife.
2. Sandpaper cut surface to remove roughness.
3. Use a staple to attach pin to the back of cork.
4. Paste linen eyelets into eye positions and stick thumb tacks in such a way as to cover the inner circle of the eyelet and leave a circle of white showing.
5. Use wire staples for the nose and ears, and curtain rod rings for the nose and ear rings.
6. Stick a thumb tack into the mouth position.
7. Wind several strands of coloured yarn around the fingers as shown in the diagram. Use a staple to attach this coil to the top of the cork: cut the loops and pull the yarn in all directions to give a tousled hair effect.

Indian Brave Lapel Pin

The Indian brave lapel pin requires yarn, staple, leather strip, and enamel paints. Coil and cut yarn as for Fuzzy Wuzzies; attach coil by means of staple to top of cork which has been sliced in half. Wind the leather strip around the yarn and the cork, overlap the ends and secure them to the back by means of a staple or thumb tack.

For a necklace that is different, collect corks—they may vary in size—and decorate them with house enamels or fingernail polish.

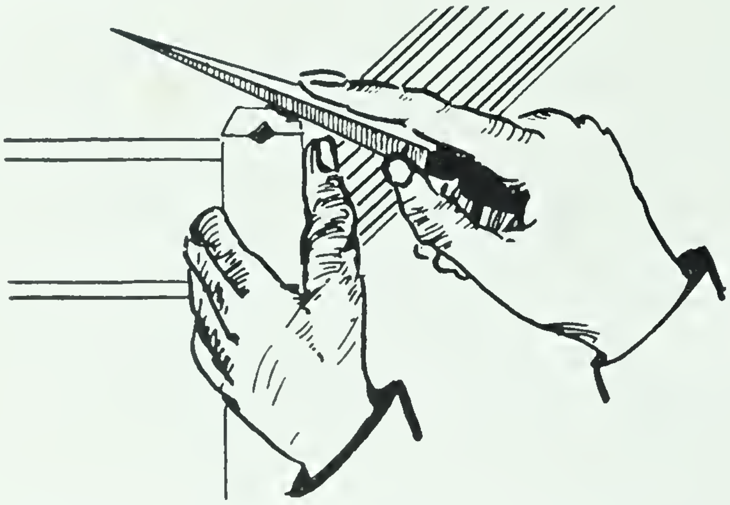
SPOOL DOLLS

These can be made from discarded spools and string. Use the large spools for the trunk and the smaller ones for the limbs. Paint the spools and apply the face features to the spool which serves as the head. To tie the spools into place, thread a button, the diameter of which is larger than that of the hole in the spool, and draw the string through the hole as illustrated in the diagram. The strings from the limbs should pass through the body and be threaded through a button on the top, and tied. If buttons are used between the spools, the toy will be more flexible.

BURLAP BELT

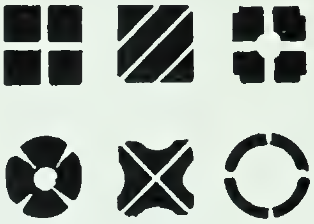
Materials required—Burlap strip 6¼″ wide and as long as the waist measurement, coloured yarn, felt scraps, rubber cement, scissors, needle, pressing iron.

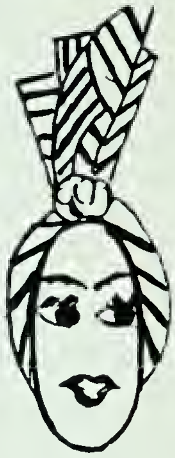
1. Cut burlap pattern as shown in the diagram.
2. Fold along the dotted lines and press with a warm iron.
3. To keep the pressed sections from unfolding and add a decorative touch, use the coloured yarn to make an overcast stitch on all the edges.
4. On thin cardboard plan a design to be appliquéd on the outer surface—animal, bird, or flower silhouettes are popular. For the most effective results keep the pattern bold and simple in outline.
5. Cut out the cardboard shapes and use them as templates on the felt scraps. On the back of the shape cut from the felt, drop some rubber cement so that each may be held in place while they are sewn at equal distances apart.
6. Make corresponding holes at each end of the belt: use a button hole stitch around the edges to prevent the burlap from unravelling.
7. Braid yarn and lace as shown in the diagram.

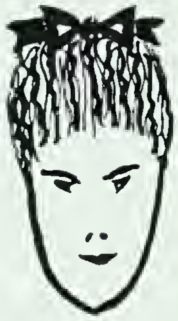


Making a relief pattern by filing.

Suggested patterns.

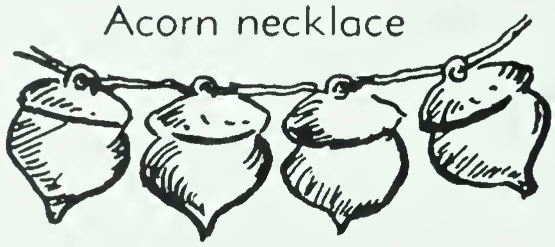




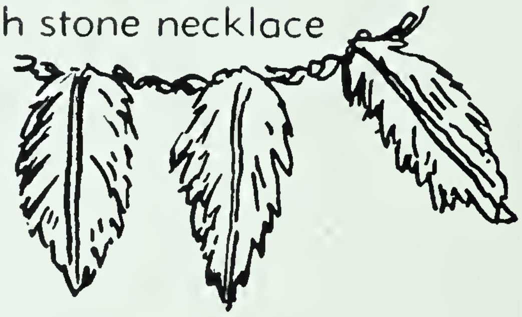


Pecan lapel pins

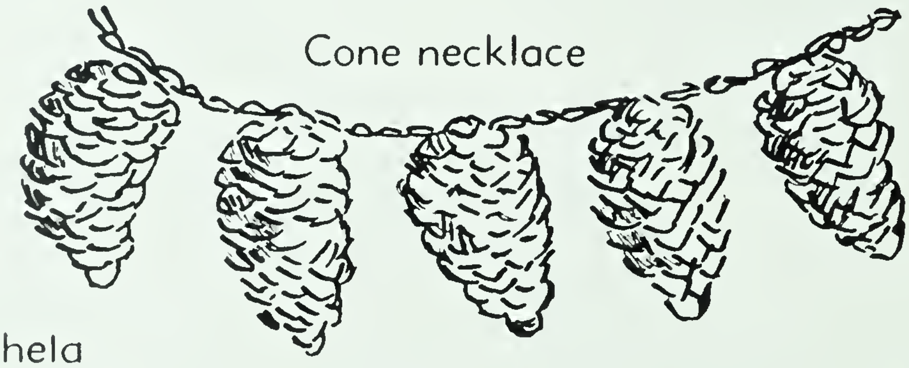
Acorn necklace



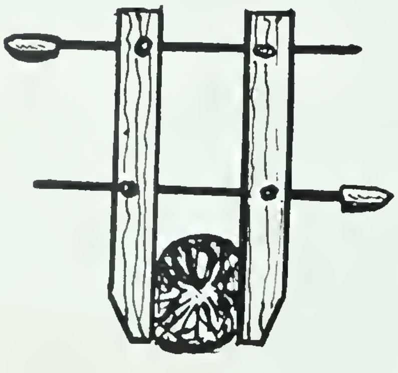
Peach stone necklace



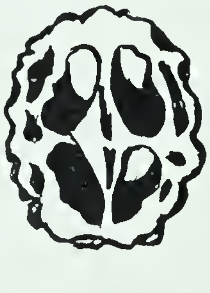
Cone necklace



Black walnut hela in hand clamp.

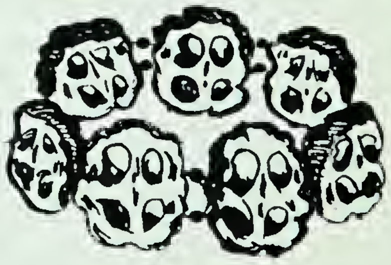


Walnut slice



Walnut slices used as buttons.

Walnut bracelet



Stick Printing

For All-Over Patterns, Book Covers, Jackets, and Wrappers

Materials required—small round, triangular, and flat files, round metal tubing of various bores, pocket knife, sandpaper, rectangular blocks of wood (birch or maple preferred) ½″ - 1″ square and 3″ long, dowel of various thicknesses (broomstick handles), saw, mimeograph paper, tempera paints.

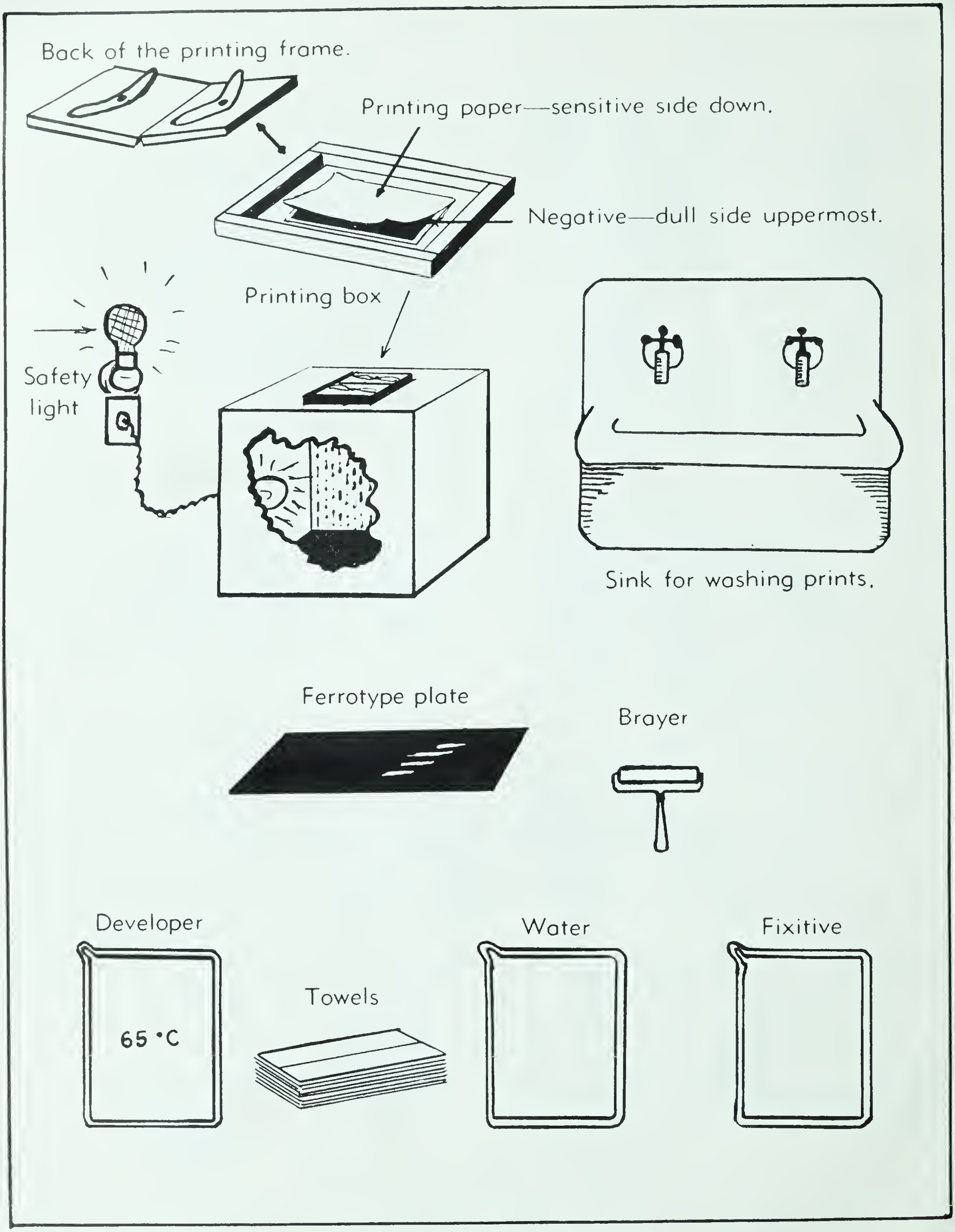
1. Rule paper off into squares or rectangles to be sure of the accurate registration of the pattern.
2. Moisten the paper and suspend it so that the surface water will drain off.
3. Saw the printing sticks into convenient lengths. Use sandpaper to make sure that the printing surface is perfectly flat.
4. Plan pattern and then transfer it to the prepared surface of the printing stick.
5. Mix the paints to a cream-like consistency.
6. Hold the stick in the left hand and pressed against the edge of the desk. With the appropriate file in the right hand, remove the wood required to put the pattern in relief. To burn a circle, heat the end of the metal tubing in a flame; when white hot, press into the surface of the printing stick.
7. Use a brush to apply the paint to the patterned surface.
8. Place the edge of the stamp along a registration line and rock it forward until the complete printing surface is in contact with the paper. Repeat until the pattern is completed.
9. Indistinct outlines may be due to insufficient paint on the printing surface; an excess amount will give a distorted outline.

Nut and Seed Novelties

Many nuts and seeds may be used to make attractive necklaces. Use small screw eyes in acorns, peach stones, small cones, etc., to provide the space through which they may be strung together. Soft seeds may be threaded by first piercing them with a sharp awl. These seeds and nuts may be painted with house enamels or coloured nail polish.

Black walnuts may be used to make interesting accessories. To make buttons the walnut is held securely in a vise or hand clamp and a back saw is used to cut half way through. Then a piece of cardboard is placed in the saw cut, the clamp is turned over, and the sawing is continued on the opposite side until completed. Cut as many slices as you want buttons. Smooth the cut surface with fine sandpaper, and then shellac. These buttons may be attached to the garment as are the Novelty Buttons in Woodcraft. To make a bracelet, drill small holes on the side of the walnut slice and string the slices in a circle on elastic thread.

Unusual lapel pins may be made from pecan nuts. A turban may be draped about the nut, and eyebrows, eyes and mouth painted on the surface. A small safety pin sewn to the back of the turban is used to fasten the ornament to the lapel. Or, a screw eye might be put in the nut at the top so that the eye portion is used to tie strands of wool to form the hair about the face which is painted on the surface. The bow at the top is not only decorative but serves to conceal the pin.


Back of the printing frame.
Printing paper—sensitive side down.
Negative—dull side uppermost.
Printing box
Safety light
Sink for washing prints.
Ferrotype plate
Brayer
Developer
65 °C
Towels
Water
Fixitive

FILMCRAFT

How to Print Negatives

Materials required: safety lamp, three trays each 8″ x 10″, glass graduate, ther-photographic brayer (roller) optional.

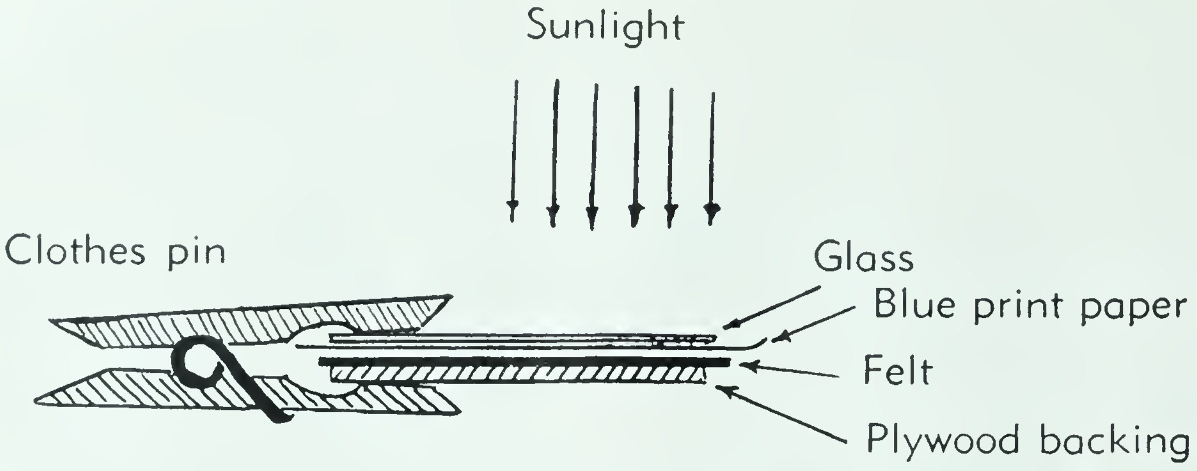
Materials required: safety lamp, three trays each 8″ x 10″, glass graduate, thermometer, towels, paper clips, printing box consisting of printing frame and printing lamp, brown photographic bottles for storing solutions, developer D72 prepared as instructed on the package, acid fixing powder (hypo), Velox No. 2 printing paper for ordinary negatives, ferrotype plate and photographic brayer (roller) optional.

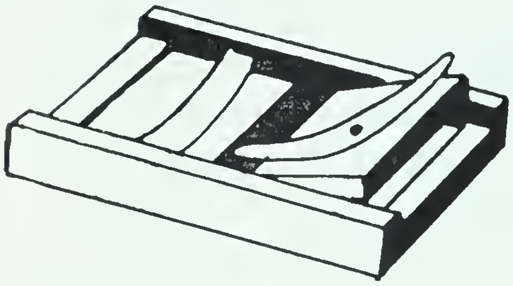
1. Set up materials as illustrated.
2. Turn off light, and turn on safety light.
3. Open package of printing paper and tear one sheet into a number of test strips: keep the remainder covered until desired for use.
4. Be sure that the glass in the printer is clean; handle negative and printing paper by the edges to eliminate the finger prints from the final print.
5. Place the sensitive side of the test strip face down on the negative, on that portion of the negative you wish to test. Place the back of the printing frame into position, and lock.
6. Make exposure test by allowing the white light to pass through negative on to the sensitive surface of the print paper. Make initial exposure of 15 seconds. Snap off the light and mark 15 on the back of this test strip.
7. Slide test strip, sensitive side uppermost, into the developer. Remember to agitate the strip slightly so that the developer covers the strip quickly and completely. When the print has been in the developer for forty-five seconds, take it out and put it into a tray of clean water to remove the developer chemicals. Rinse for a few seconds.
8. Slip test strip face up into the fixitive, which stops the action of the developer. Make sure that it is completely covered by the solution. Move it about slightly, and then turn it face down in the solution for at least fifteen seconds. Now the strip is ready for examination. If this strip is too pale, then more exposure time must be given because the negative is dense; if the strip is too dark, then the exposure time must be reduced. Make several tests, keeping each strip forty-five seconds in the developer before making the final print in order to arrive at the correct exposure time for your print.
9. Repeat steps 5 to 8 inclusive, substituting print paper cut to the correct size for the test strips.
10. Wash prints for at least one hour; try to prevent the stream of water from falling directly upon the prints. For a dull finish, use paper clips to hang them up to dry. To give prints a shiny finish, roll them out on a prepared ferrotype plate.

Additional Working Hints

1. Keep all materials clean that you use or with which you are working.
2. Handle print paper only when the safe light is on.
3. When preparing the chemicals, always put the chemicals into the water; do not pour the water over the chemicals.
4. Carefully label bottles in which the solutions are stored.
5. Label trays so that the same ones are always used for developer or fixitive.
6. Never guess about the temperature of your developer, it should never be less than 65° C and not more than 70° C.
7. Always wash your hands after you have had them in hypo.

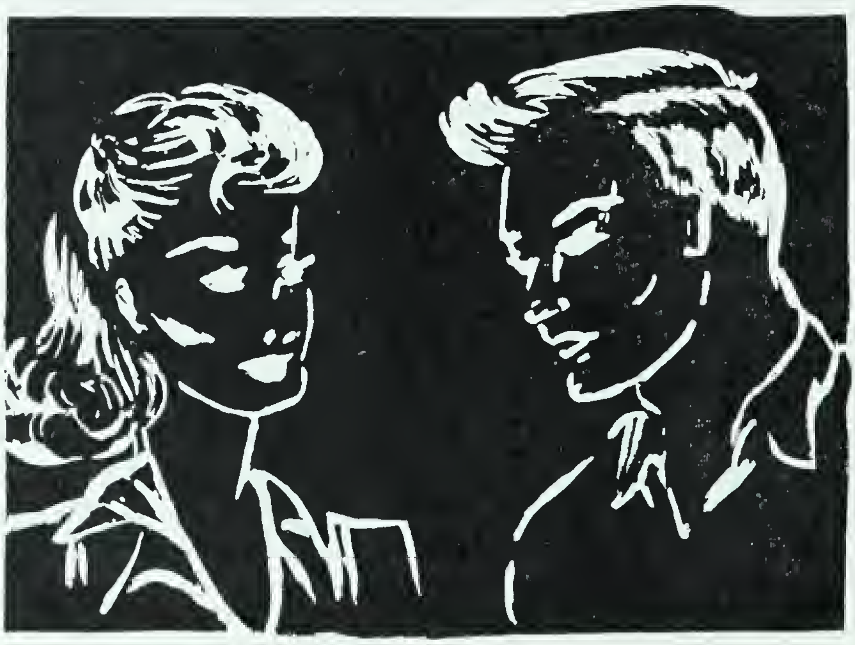
It is possible to make your own negatives. Effective greeting cards can be made this way. Plan an appropriate illustration or motif for your card. When satisfied with the distribution of black and white areas, place a sheet of isinglass or celluloid over the drawing and use india ink to paint in those areas that you wish to have white in the final print, leaving the black areas untouched. For a grayed effect





Commercial printing frame

Tracing



Blue print

stipple the un-inked space. When dry, place the inked isinglass sheet in the printing box —inked surface next to the glass—and proceed as outlined above.

SUN PRINTING

(a) *Blue Printing*—essentially a photographic process, the original tracing acting as a negative.

Materials required—tracing, photographic negative or opaque stencil, blue print paper, printing frame, water, potassium bichromate solution (1 teaspoon to a gallon of water).

1. Prepare tracing on transparent paper, using india ink; all lines not wanted should be carefully removed or omitted. When using typewritten material, place the carbon paper face up under the tracing paper to produce a black imprint on both sides of the tracing.
2. Place the tracing in the commercial or home-made printing frame so that the inked side of the tracing is against the glass.
3. The loading of the printing frame with the blue print paper should be done in subdued light, with the yellowish, sensitive side of the paper next to the tracing.
4. Try to get a firm, even pressure between the tracing and the blue print paper to prevent the light from creeping in under the black lines of the tracing.
5. Exposure. (a) Place the printing surface at right angles to the source of light. (b) The time required to produce a print depends upon the intensity of the light, the transparency of the tracing, and the speed of the blue print paper—rapid, medium, or slow. The exposure time, which must be determined by trial, varies from fifteen seconds on a clear summer day to many minutes on a dull winter day.
6. Development. (a) Remove exposed blue print paper from the frame. (b) Wash the paper in running water which develops the sun-affected chemical surface, turning it blue. That portion of the chemical surface which was protected by the lines, washes out, leaving white lines.
7. Dip brush or cotton batting into bichromate solution, and daub it over the print, making sure that all parts are covered. The solution acts as a fixitive and will prevent the print from fading.
8. After fixing, rewash the exposed print to remove any excess solution. Use brayer to remove water and wrinkles resulting from soaking and handling. Hang up to dry. An over-exposed print will be blackish blue: an under-exposed print, whitish blue.
9. To make blue print paper. Use white paper of good quality and coat it with a solution of the following:

A.	Ferric ammonium citrate	2	oz.
	Water	8	oz.
B.	Potassium ferricyanide	1¼	oz.
	Water	8	oz.

Mix equal parts immediately before use. Float paper on the solution for three minutes. Hang up paper to dry in a dark, dry place. The solution might be daubed on the paper with a small piece of cotton. Blue print paper can be purchased from dealers in art or architectural supplies in rolls 30, 36, or 42 inches wide and 10, 25, and 50 yards long. *Always store blue print paper in a dark, dry place.*

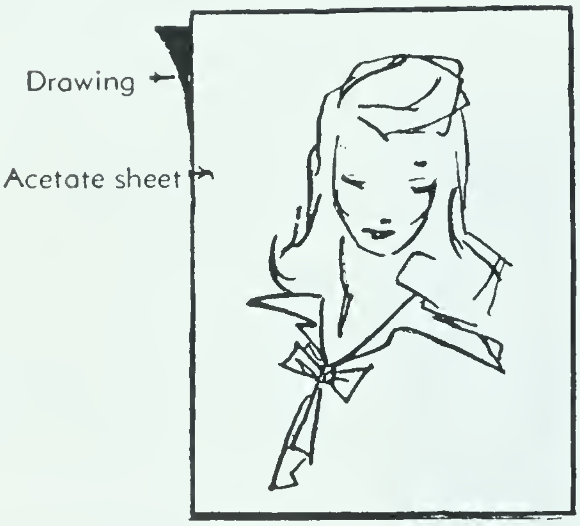
(b) *Ozalid or Ammonia Print*—In this process neither washing nor fixing is required. The result is a purple-blue line on a white background.

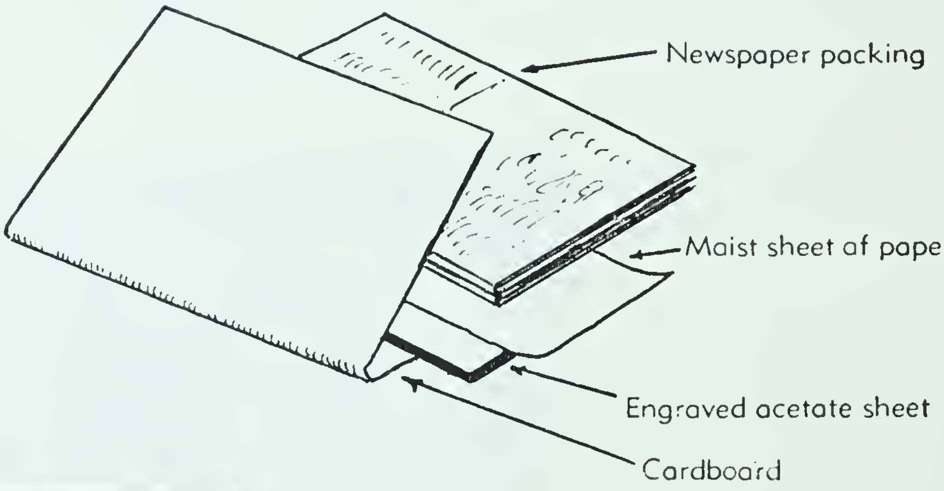
1. Repeat steps 1-5 inclusive of Blue Printing, using ozalid blue line paper instead of B.P. paper. This paper may be secured from Martin and Lawrie, 22 Gore St., Hamilton, Ontario.
2. Development. Remove ozalid paper from the printing frame and place in an opaque container which contains a cloth saturated with ammonia. The fumes from the ammonia act upon the surface chemical leaving the exposed areas white and the areas protected by the lines, purple-blue.

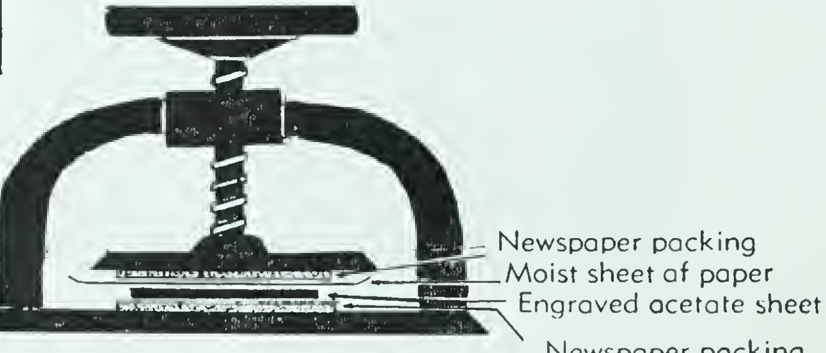
CELLULOID PRINTING

Materials required—scriber (ice-pick, darning needle, phonograph needle in propelling pencil), cellulose acetate, press (vise, clothes wringer), thinned printer's ink, turpentine, cloths, absorbent paper, brayer, sheet of glass.

1. On previously drawn sketch or drawing, place a piece of acetate sufficiently large to cover the drawing and leave appropriate margins on top, sides and bottom. Make sure that the acetate is a rectangle.
2. On scrap of acetate make practice strokes. Hold scriber erect for all strokes which may be made in any direction. The blackness of the final print will depend upon the depth or width of the engraved line. Gray tones may be secured by textures or cross-hatchings.
3. Set up material as indicated in the diagram.
4. To print, first dampen paper and remove excess water from surface by placing the sheet between two pieces of blotting paper.
5. Roll out a thin film of ink on glass. Make a cloth dauber, pick up some of the ink from the glass, and using a rotary motion, rub the ink over the whole surface of the engraved acetate, making sure that the engraved lines are completely filled with ink.
6. Use clean cloth to remove the ink from the surface so that only the engraved line is inked.
7. Place materials in cardboard folder as indicated in the diagram before placing them in the press. Tighten press slowly. Allow the material to remain in the press for at least three minutes. Unscrew press, remove folder, and peel off print. Clean acetate with turpentine.
8. To prevent paper from shrinking, tack it to a flat surface until it dries.
9. Celluloid prints might be used to make class calendars, to illustrate poems, scenes from novels, or important events in the history of the school. "Coiffures Round the World" would provide correlation between Home Economics and Art for a class activity.







Letter press

Sources of Artists' Supplies and Tools

James T. Donnolly Co., Ltd.,
386 King Street W., Toronto, Ontario

Hand tools, power tools, equipment and supplies for all crafts — Woodcraft, Metalcraft, Leathercraft, Reedcraft, Claycraft, Linocraft, Plastics.

Eastman Photographic Stores Ltd.,
114 Yonge Street, Toronto, Ontario

Photographic papers, chemicals, texts, cameras, enlarging equipment, Graphic Art supplies.

Lewis Craft Supplies, Ltd.,
8 Bathurst Street, Toronto, Ontario

Craft, tooling, and glove leathers, leather tools, dyes, and supplies, weaving yarns, shells and accessories, plastic supplies.

Reeves & Sons (Canada) Ltd.,
120 Richmond Street W., Toronto, Ontario

Artists' oils, water and tempera colors, brushes, crayons, papers, clays, drawing instruments and supplies, art and craft books.

Glossary

abstract	Considered and thought apart from any particular object.
accent	Emphasis made by means of position, light, shade, colour, texture, etc.
accessories	Harmonizing or contrasting additions to costume.
alcohol (wood)	Thinner for shellac; used as illuminating material in a spirit lamp.
alphabet	A group of symbols (letters) representing the sounds of language.
analogous	In colour work refers to related combinations, i.e., yellow, yellow-green, and green.
antiquing	Giving an aged appearance to copper by immersing it in a solution of potassium sulphide.
appliqué	A surface of definite shape and texture superimposed on another surface either by an adhesive, or by stitching.
asphaltum	Black, viscous paint used as a resist to nitric acid during the etching process.
awl	Sharp, needle-like metal instrument used for making holes in leather preparatory to stitching.
balance	Arrangement of elements in a manner to give the spectator a feeling of stability.
biscuit ware	Pottery after the first firing.
blind tooling	The making of pattern through the use of steel or wood stamping tools.
border	Strip along or near the edge of a surface or an object used as an ornamental frame or finish.
brad	Small nail with little or no head.
braiding	Method of weaving long strips of a material into a unit.
brayer	Rubber or composition roller on a wire or metal handle used to transfer ink from the plate to the block in Linocraft, or to remove excess water from wet prints in Filmcraft.
burnishing	Rubbing the back of a print with a large, smooth object to facilitate the transfer of the ink on the block to the print.
burr	Rough ridge of material thrown up by engraving action of the scriber on the metal or celluloid plate.
butt stitch	Used to lace two pieces of leather whose edges are butted one against the other.
buttonhole stitch	Loop stitch used to bind together two pieces of leather so that the edge is covered in a decorative manner.
cardboard	Stiff compact paper board used for posters, patterns, models, etc.
cartoon	Humorous or satirical drawing.
ceramics	Making, glazing and firing of clay objects.
chasing	Process of tooling the surface of sheet metals by means of a hammer and punches.
classic	In keeping with the best traditions of Greek Art which implied (a) nothing to excess; (b) proper relation between function and decoration.

complementary	Refers to two colours when mixed in proper proportion will produce gray.
congruity	Agreement between the various parts, in addition to a harmony between the parts and the whole.
consistency	Condition of uniform density.
conventionalized	Simplification from a real or natural form to a form which has the group characteristics: all birds have heads, beaks, bodies, feathers, feet and claws.
copying	Object or drawing made in close imitation of another.
cursive	As applied to handwriting describes the joining of one letter to another to eliminate the angular forms of the individual letters.
damp box	Box lined with moist plaster of paris to prevent unfinished clay objects from drying out too quickly.
decorative	Presence of a pattern on a surface.
design	Term used to describe the planning, choosing, or arranging of ideas or things so that they will be more satisfying, or useful than they were before the change was made.
dividers	Drawing instrument resembling a pair of compasses used to mark off distances.
dowel	Machined cylindrical wood used (a) for handles, (b) for connecting two adjacent boards.
electric pencil	Electrically heated tool in which the heat is sufficient to mark the surfaces of wood or leather when in contact with either of them.
embossing	Forcing up leather by applying a special tool at the back to a greater height than could be obtained by modelling.
enamel	Oil base paint which has a high gloss.
engraved	Incisions made so that the incised lines or surfaces, in contrast to the areas left in relief, constitute a pattern.
etching	Method by which a pattern is made on metal or glass by a corroding agent such as nitric acid or hydrofluoric acid.
file	Metal tool used to remove the rough and sharp edges from wood or metal.
firing	The baking of pottery in a kiln.
fixitif	Covering for chalk drawings made of a mixture of alcohol and white shellac.
fixitive	Chemical solution used in printing photographic negatives.
flat tooling	Pressing down all of the background around the pattern using the modeller in a circular motion.
flesh side	Unfinished side of a leather skin.
frieze	Ornamental band applied to a wall.
gauge	Thickness of metal indicated by number or decimal.
glaze	Glass-like coating on fired pottery.
gouge	Wood chisel used to cut grooves in a surface.
guild	Medieval association of craftsmen formed for mutual aid and protection.
harmony	The proper adaption of parts to each other in a system intended to form a connected whole.
high light	A surface plane on which the light falls directly.
hue	That characteristic of colour which distinguishes red from green, yellow, blue, etc.
incised	A cut made in or into a surface with a sharp instrument.

inlaid	Set into a surface so as to form a decorative pattern.
kiln	Oven of brick or stone for hardening, burning or drying.
lacing	String-like length of leather passing through holes or eyelets and used in drawing or holding together the leather parts.
lacquer	Varnish-like substance sprayed or painted over metal to prevent tarnishing.
life mask	Exact reproduction of the face made by use of a plaster mold.
liquid solder	Metallic adhesive for unlike materials.
lower case	Terms used by printers to indicate small (not capital) letters.
mallet	Wooden hammer used to prevent the surface receiving the blow from being marred.
margin	That part of a page or surface outside of the main body of printed or decorative matter.
medium	Material used by the artist or craftsman out of which the final product is made.
model	First work used as a pattern from which others are copied: anyone posing for a painter.
mold	Cavity in which anything is shaped and from which it takes its form.
montage	A composition made by pasting pattern elements on a surface.
morgue	A file or storage for clippings or illustrations that is used for ready reference.
mosaic	Inlaid pattern made by using coloured glass or stone.
motif	The important element in a decorative pattern.
naturalistic	Term used to describe an object or drawing in which the natural form is very carefully copied.
negative	Celluloid photographic plate in which the light and dark of nature are reversed.
nitric acid	Corrosive agent used in the etching of metals.
original	Term applied to the first model or work of an artist; not copied from another.
pattern	Arrangement of units on a surface in accordance with a plan.
pigment	Powder or easily powdered material prepared as a paint by mixing it in a liquid in which it cannot be dissolved.
plane	A flat or level material surface.
plaster bat	Plaster base upon which clay is worked to keep it or bring it to the proper consistency.
plastics	Synthetic material made from chemicals.
potter's wheel	Horizontal disk revolving on a vertical shaft and turning the clay in the operation of throwing.
proportion	The suitable relation of one part, thing, mass, line, etc., to another.
puff-on pattern	Made by puffing a brush charged with chalk dust over a drawing outlined by perforations—the chalk penetrates these perforations and a dotted line is deposited on the surface under the drawing.
rattan	Commercial name applied to the long trailing stems of a particular species of palm growing wild in the East Indies, which when processed is made into reed of various thicknesses.
realistic	Applied to work which is done from life and is thus true to nature.

relief	Ornament raised from a background: usually applied as high, middle, or low.
Renaissance	The transitional movement in Europe between the medieval and modern world marked especially by a revival in Classical Arts and Letters.
repoussé	Ornament in metal effected by the action of a modelling tool from behind until a rough image of the desired figure is produced, which is finished by chasing.
rhythm	The regular recurrence of like elements in a composition.
rubber cement	Quick drying rubber base liquid adhesive.
scale	Representation of an object to accurate proportion usually smaller than the finished or proposed object.
score	Process of incising a line on metal paper or leather prior to making a sharp bend.
scratch board	Paperboard with coated black surfaces which may easily be removed to reveal a white line or area.
sculpture	The carving of wood, stone or other materials into objects.
scriber	A sharp pointed metal instrument used to make lines on metal or wood.
serif	Decorative finish on the tips of letters.
shade	Hue to which black has been added.
silhouette	Profile of an object filled in with uniform colour whose form is revealed by the sharp contrast it makes with the surrounding light, space or material.
simplicity	Denotes a freedom from, and lack of, superficial additions.
singeing	Top burning to remove reed "hairs".
size	Weak glue used to keep one mass of plaster from permanently adhering to another mass and thus forming a solid block.
sizing	Filler of starch forced into the meshes of cotton material to give it body.
sketch	Quick rough drawing.
skive	Splitting or cutting the edge of a hide of leather to reduce it in thickness.
slip	Clay in liquid state preparatory to casting.
spectrum	White light broken into its component hues.
stencil	Metal or paper mask out of whose interior a pattern is cut.
technique	Method or style used by the artist-craftsman on the material with which he is working. It may indicate his individual or creative approach.
tempera	A preparation of opaque colour ground with size and water.
template, templet	Surface whose edge is shaped in such a manner so that it may serve as a guide in making an article with a corresponding contour.
tint	Hue to which white has been added.
tone	Hue to which gray has been added.
totem pole	Carved or painted pole depicting conventionalized birds, beasts, etc., located in front of the homes of some of the British Columbia tribes. Generally their presence indicates a belief that there exists some special relation between the human group and the class of animals depicted.
undercut	The cut away shape on the under part of the side of an object so as to leave an overhanging portion.
unity	Harmonious correspondence between all parts of a work so as to result in a satisfying whole.

veiner	Wood carving chisel.
veneer	Thin surface of wood laid upon another of a less valuable sort so that the whole article appears to be of the more valuable sort.
vise	Metal tool consisting of two jaws closing by means of a screw used to hold an object rigidly and securely in place.
water colours	Pigment ground with water and some binding material—as opposed to oil colours.
wedging	Cutting clay by means of a taut wire to expose and remove air pockets.
wood cut	An engraving on wood or a print made from such an engraving.

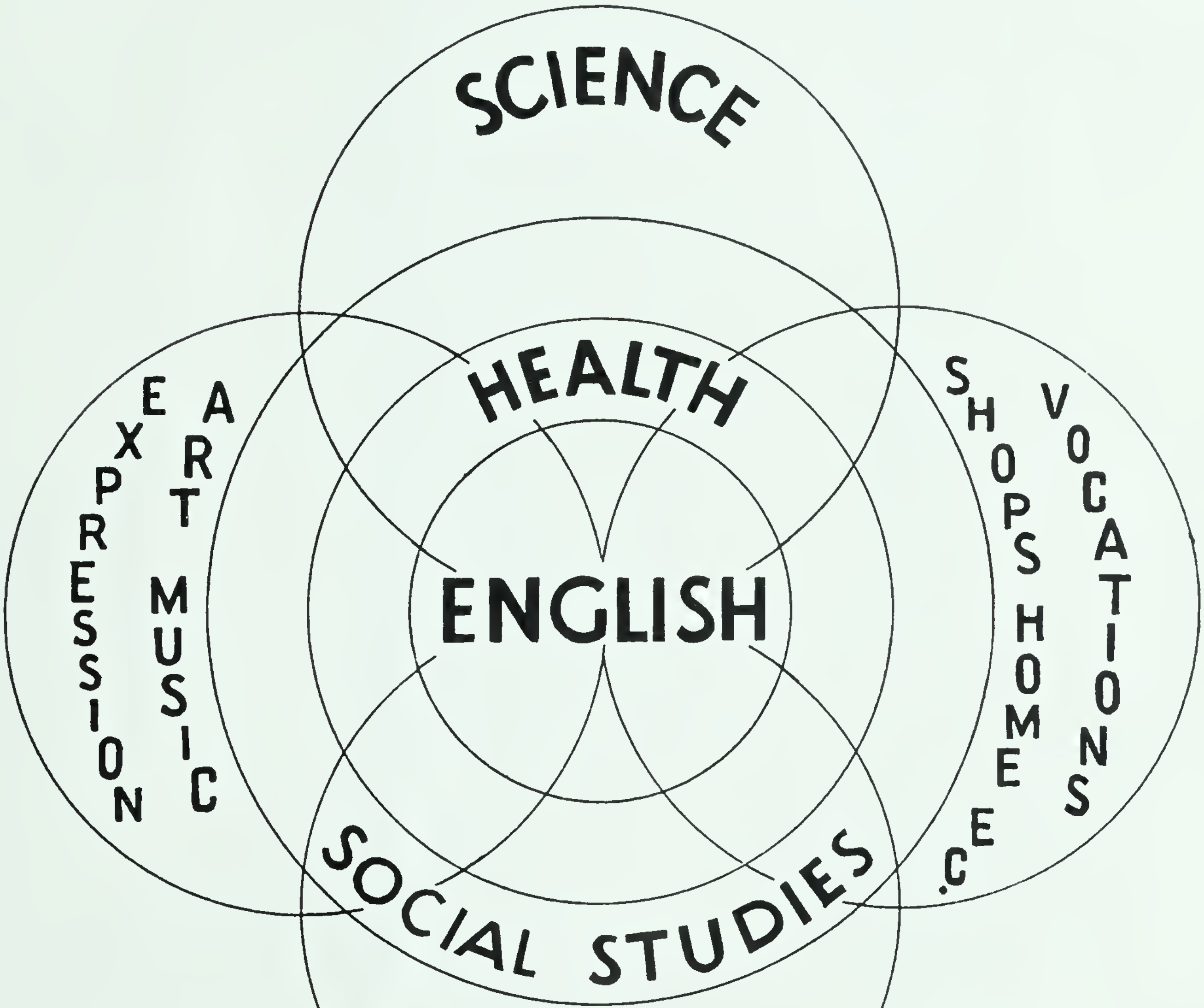


Diagram showing the place of Art in the Curriculum in its relation to other subjects

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Date Due

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APR 11 RETURN
LSUC OCT 7 '77
Returned OCT 5'77
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Returned OCT 14'77
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